



# Glo-Ray®

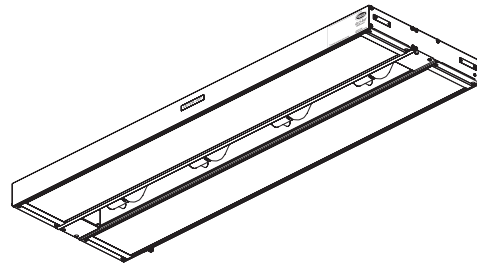
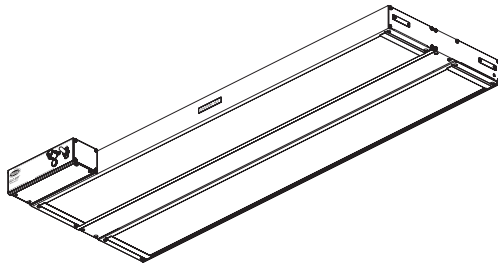
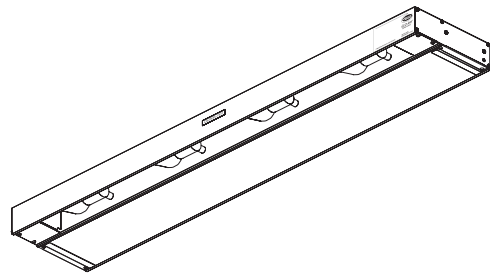
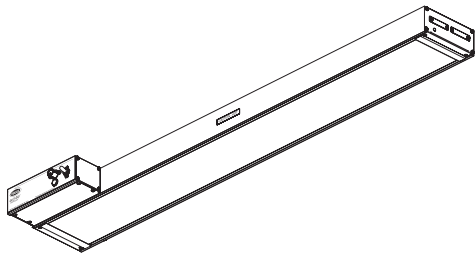
## Infra-Black® Strip Heaters

## Infra-Black 长条形保温灯

### GRAIH Series/系列

## Installation and Operating Manual

## 安装及操作手册



### **⚠ WARNING**

Do not operate this equipment unless you have read and understood the contents of this manual! Failure to follow the instructions contained in this manual may result in serious injury or death. This manual contains important safety information concerning the maintenance, use, and operation of this product. If you're unable to understand the contents of this manual, please bring it to the attention of your supervisor. Keep this manual in a safe location for future reference.

English = p 2

### **⚠ 警告**

请在认真阅读并理解本手册的内容后再操作本设备！不按照本手册中的说明操作可能会导致严重的人身伤亡事故。本手册中包含了有关本产品维护、使用和操作的重要安全事项。如果您不理解本手册的内容，请将本手册交给主管人员，以提请其注意。请将本手册妥善放置，以便参照。

中文 = 第 20 页

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## IMPORTANT OWNER INFORMATION

Record the model number, serial number, voltage, and purchase date of the unit in the spaces below (specification label located on the side of the unit). Please have this information available when calling Hatco for service assistance.

Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

Voltage \_\_\_\_\_

Date of Purchase \_\_\_\_\_

Business Hours: 9:00 AM to 6:00 PM (Beijing Time)

Monday through Friday

Telephone: (0512) 6732-5091

E-mail: [infocn@hatcocorp.com](mailto:infocn@hatcocorp.com)

Additional information can be found by visiting our web site at [www.hatcocorp.com](http://www.hatcocorp.com)

## INTRODUCTION

Glo-Ray® Infra-Black® Strip Heaters ensure maximum food holding time and minimize the risk of food-borne illness. Optimum safety and quality is the result of food held at the proper serving temperatures using Glo-Ray's pre-focused heat patterns. Glo-Ray Infra-Black emitters provide a solid panel of uniform heat distribution that is ideal for limited space operations.

The metal sheathed heating elements housed in the Infra-Black emitters are guaranteed against burnout for two years.

Glo-Ray Infra-Black Strip Heaters are a product of extensive research and field testing. The materials used were selected for maximum durability, attractive appearance, and optimum performance. Every unit is inspected and tested thoroughly prior to shipment.

This manual provides the installation, safety, and operating instructions for Glo-Ray Infra-Black Strip Heaters. Hatco recommends all installation, operating, and safety instructions appearing in this manual be read prior to installation or operation of a unit.

Safety information that appears in this manual is identified by the following signal word panels:

### **WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### **CAUTION**

**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

### **NOTICE**

**NOTICE** is used to address practices not related to personal injury.



Read the following important safety information before using this equipment to avoid serious injury or death and to avoid damage to equipment or property.

**⚠ WARNING****ELECTRIC SHOCK HAZARD:**

- Units supplied without an electrical cord and plug require a hardwired connection to the on-site electrical system. Connection must be properly grounded and of the correct voltage, size, and configuration for the electrical specifications of the unit. Contact a qualified electrician to determine and install the proper electrical connection.
- Turn power OFF at fused disconnect switch/circuit breaker and allow unit to cool before performing any maintenance, adjustments, or cleaning.
- For hardwired units, all electrical connections must be in accordance with local electrical codes and any other applicable codes. Connections should be made by a qualified, licensed electrician.
- DO NOT submerge or saturate with water. Unit is not waterproof. Do not operate if unit has been submerged or saturated with water.
- Unit is not weatherproof. Locate unit indoors where the ambient air temperature is a minimum of 21°C (70°F).
- Do not steam clean or use excessive water on the unit.
- This unit is not “jet-proof” construction. Do not use jet-clean spray to clean this unit.
- Do not clean unit when it is energized or hot.
- This unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.
- Use only Genuine Hatco Replacement Parts when service is required. Failure to use Genuine Hatco Replacement Parts will void all warranties and may subject operators of the equipment to hazardous electrical voltage, resulting in electrical shock or burn. Genuine Hatco Replacement Parts are specified to operate safely in the environments in which they are used. Some aftermarket or generic replacement parts do not have the characteristics that will allow them to operate safely in Hatco equipment.

**FIRE HAZARD:**

- Do not install unit above or around combustible surfaces. Discoloration or combustion could occur. Unit must be installed in non-combustible surroundings only.
- Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

This unit is not intended for use by children or persons with reduced physical, sensory, or mental capabilities. Ensure proper supervision of children and keep them away from the unit.

This unit has no “user-serviceable” parts. If service is required on this unit, contact an Authorized Hatco Service Agent or contact Hatco at (0512) 6732-5091.

**⚠ WARNING**

Use only light bulbs that meet or exceed National Sanitation Foundation (NSF) standards and are specifically designed for food holding areas. Breakage of light bulbs not specially coated could result in personal injury and/or food contamination.

Make sure all operators have been instructed on the safe and proper use of the unit.

For installation with chains, make sure the chains have sufficient strength and are securely fastened to both the strip heater and the mounting location. Poorly installed chains may cause the heater to loosen and fall. Do not place anything on top of heaters installed with chains.

**⚠ CAUTION**

**BURN HAZARD:** Some exterior surfaces on unit will get hot. Avoid unnecessary contact with unit.

Standard and approved manufacturing oils may smoke up to 30 minutes during initial startup. This is a temporary condition. Operate unit without food product until smoke dissipates.

Light-equipped strip heaters that require a circuit breaker 20 amps or larger must be installed with a remote control enclosure containing a fuse rated at 20 amps or less for the light circuit.

Ensure safe and proper operation. Refer to the “Minimum Clearance Requirements” listed in the Installation section of this manual.

**NOTICE**

Damage to countertop material such as Corian® and similar products caused by heat generated from Hatco equipment is not covered under the Hatco warranty. Contact the manufacturer of the countertop material for application information.

Remote mounted control boxes must be installed outside strip heater heat zone to prevent premature failure of components due to excessive heat.

Installation of two or more separate units with less than 76 mm (3”) between housings may result in premature failure of component parts. Failure to provide proper spacing may result in heat damage to electrical components and are not covered by warranty.

Use non-abrasive cleaners only. Abrasive cleaners could scratch the finish of the unit, marring its appearance and making it susceptible to soil accumulation.

Do not locate unit in area with excessive air movement around unit. Avoid areas that may be subject to active air movements or currents (i.e., near exhaust fans/hoods, air conditioning ducts, and exterior doors).

## MODEL DESCRIPTION

English

### All Models

Glo-Ray® Infra-Black® Strip Heaters are perfect for foodwarming at a close range to food product. Heat from a metal sheathed heating element housed inside an Infra-Black emitter is distributed evenly throughout the entire surface area of the emitter. The emitter gives off a solid panel of heat downward onto the food product.

Glo-Ray Infra-Black Strip Heaters are constructed with aluminum housings in lengths of 457 mm (18") to 1829 mm (72").

Dual models allow for side-by-side mounting of two heating elements to provide a wider holding area. Dual models are constructed with a standard 76 mm (3") or optional 152 mm (6") spacer between heating elements.

Glo-Ray Infra-Black Strip Heaters have several mounting options and switch locations. A thermostatic control box with indicator lights (TCBI) can be mounted on the unit with a thermostatic control, I/O (ON/OFF) toggle switch, and an indicator light. Remote control enclosure(s) (RMBs) can be configured with infinite control(s), I/O (ON/OFF) toggle switch(es), and/or indicator light(s). Units are available in several optional Designer colors and gloss finishes.

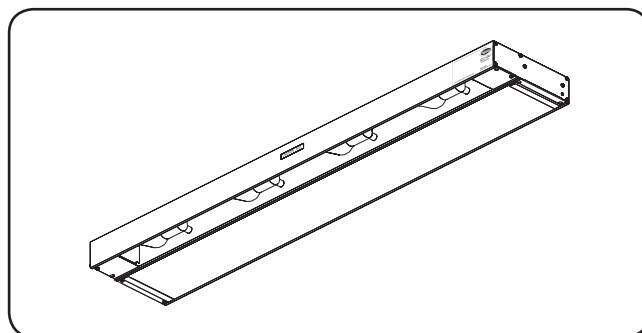
**GRAIH-XX:** Aluminum housing, single element

**GRAIHL-XX:** Aluminum housing, incandescent lights, single element

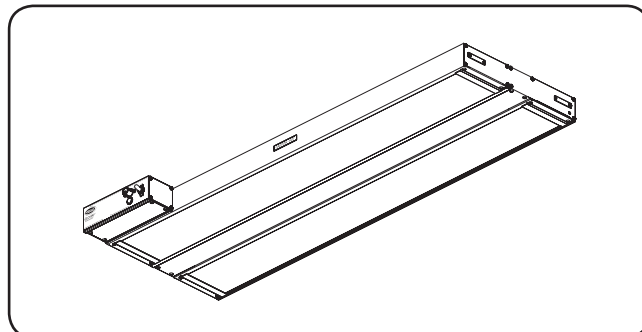
**GRAIH-XXD:** Aluminum housing, dual elements

**GRAIHL-XXD:** Aluminum housing, incandescent lights, dual elements

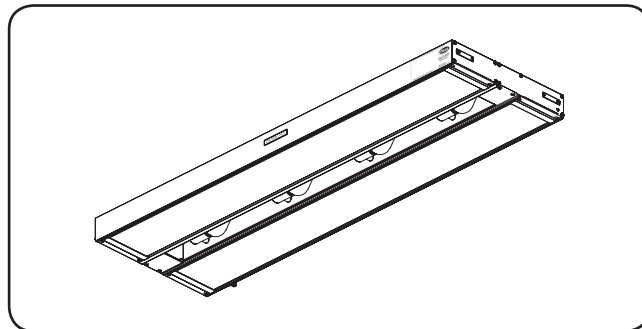
**GRAIL-XXD:** Aluminum housing, incandescent lights, dual elements



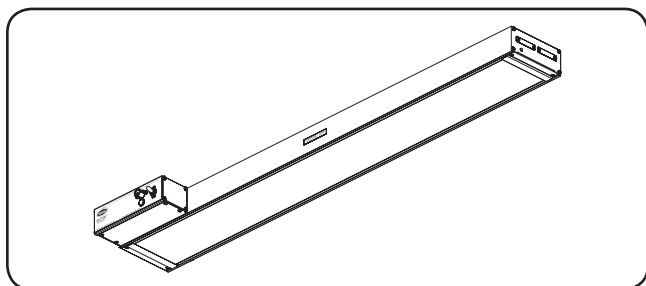
GRAIHL-XX Model



GRAIH-XXD Model with TCBI

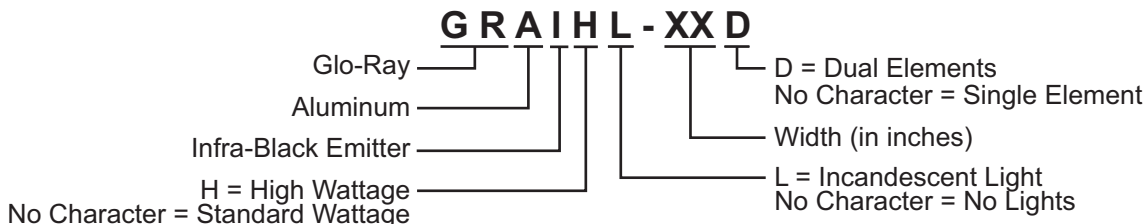


GRAIL-XXD and GRAIHL-XXD Model



GRAIH-XX Model with TCBI

## MODEL DESIGNATION



Electrical Rating Chart — GRAIH-XX Models

Model	Voltage	Watts	Amps	Shipping Weight
GRAIH-18	220	350	1.6	3 kg (6 lbs.)
	240		1.5	
GRAIH-24	220	500	2.3	5 kg (11 lbs.)
	240		2.1	
GRAIH-30	220	660	3.0	6 kg (13 lbs.)
	240		2.8	
GRAIH-36	220	800	3.6	7 kg (15 lbs.)
	240		3.3	
GRAIH-42	220	950	4.3	8 kg (17 lbs.)
	240		4.0	
GRAIH-48	220	1100	5.0	10 kg (21 lbs.)
	240		4.6	
GRAIH-54	220	1250	5.7	11 kg (24 lbs.)
	240		5.2	
GRAIH-60	220	1400	6.4	12 kg (27 lbs.)
	240		5.8	
GRAIH-66	220	1560	7.1	14 kg (30 lbs.)
	240		6.5	
GRAIH-72	220	1725	7.8	15 kg (33 lbs.)
	240		7.2	

NOTE: Shipping weight does not include remote control enclosure. Add 1–3 kg (2–8 lbs.) to shipping weight depending on size of remote control enclosure.

Electrical Rating Chart — GRAIHL-XX Models

Model	Voltage	Watts	Amps	Shipping Weight
GRAIHL-18	220	450	2.0	5 kg (12 lbs.)
	240	470	2.0	
GRAIHL-24	220	600	2.7	7 kg (15 lbs.)
	240	620	2.6	
GRAIHL-30	220	760	3.5	8 kg (17 lbs.)
	240	780	3.3	
GRAIHL-36	220	950	4.3	9 kg (20 lbs.)
	240	980	4.1	
GRAIHL-42	220	1100	5.0	10 kg (23 lbs.)
	240	1130	4.7	
GRAIHL-48	220	1300	5.9	12 kg (26 lbs.)
	240	1340	5.6	
GRAIHL-54	220	1450	6.6	13 kg (29 lbs.)
	240	1490	6.2	
GRAIHL-60	220	1650	7.5	15 kg (33 lbs.)
	240	1700	7.1	
GRAIHL-66	220	1810	8.2	15 kg (34 lbs.)
	240	1860	7.8	
GRAIHL-72	220	2025	9.2	16 kg (36 lbs.)
	240	2085	8.7	



Light-equipped strip heaters that require a circuit breaker 20 amps or larger must be installed with a remote control enclosure containing a fuse rated at 20 amps or less for the light circuit.

# SPECIFICATIONS

**Electrical Rating Chart — GRAIH-XXD Models**

Model	Voltage	Watts	Amps	Shipping Weight
GRAIH-18D	220	700	3.2	6 kg (13 lbs.)
	240		2.9	
GRAIH-24D	220	1000	4.5	9 kg (19 lbs.)
	240		4.2	
GRAIH-30D	220	1320	6.0	10 kg (21 lbs.)
	240		5.5	
GRAIH-36D	220	1600	7.3	11 kg (24 lbs.)
	240		6.7	
GRAIH-42D	220	1900	8.6	12 kg (27 lbs.)
	240		7.9	
GRAIH-48D	220	2200	10.0	15 kg (32 lbs.)
	240		9.2	
GRAIH-54D	220	2500	11.4	16 kg (35 lbs.)
	240		10.4	
GRAIH-60D	220	2800	12.7	18 kg (39 lbs.)
	240		11.7	
GRAIH-66D	220	3120	14.2	19 kg (42 lbs.)
	240		13.0	
GRAIH-72D	220	3450	15.7	21 kg (46 lbs.)
	240		14.4	

**Electrical Rating Chart — GRAIHL-XXD Models**

Model	Voltage	Watts	Amps	Shipping Weight
GRAIHL-18D	220	800	3.6	8 kg (18 lbs.)
	240	820	3.4	
GRAIHL-24D	220	1100	5.0	10 kg (21 lbs.)
	240	1120	4.7	
GRAIHL-30D	220	1420	6.5	10 kg (23 lbs.)
	240	1440	6.0	
GRAIHL-36D	220	1750	8.0	12 kg (27 lbs.)
	240	1780	7.4	
GRAIHL-42D	220	2050	9.3	14 kg (30 lbs.)
	240	2080	8.7	
GRAIHL-48D	220	2400	10.9	16 kg (35 lbs.)
	240	2440	10.2	
GRAIHL-54D	220	2700	12.3	17 kg (38 lbs.)
	240	2740	11.4	
GRAIHL-60D	220	3050	13.9	19 kg (42 lbs.)
	240	3100	12.9	
GRAIHL-66D	220	3370	15.3	20 kg (44 lbs.)
	240	3420	14.3	
GRAIHL-72D	220	3750	17.0	22 kg (48 lbs.)
	240	3810	15.9	

**Electrical Rating Chart — GRAIL-XXD Models**

Model	Voltage	Watts	Amps	Shipping Weight
GRAIL-60D	220	1440	6.5	19 kg (42 lbs.)
	230	1575	6.8	

*NOTE: Shipping weight does not include remote control enclosure. Add 1–3 kg (2–8 lbs.) to shipping weight depending on size of remote control enclosure.*

*NOTE: Shipping weight includes packaging.*

## CAUTION

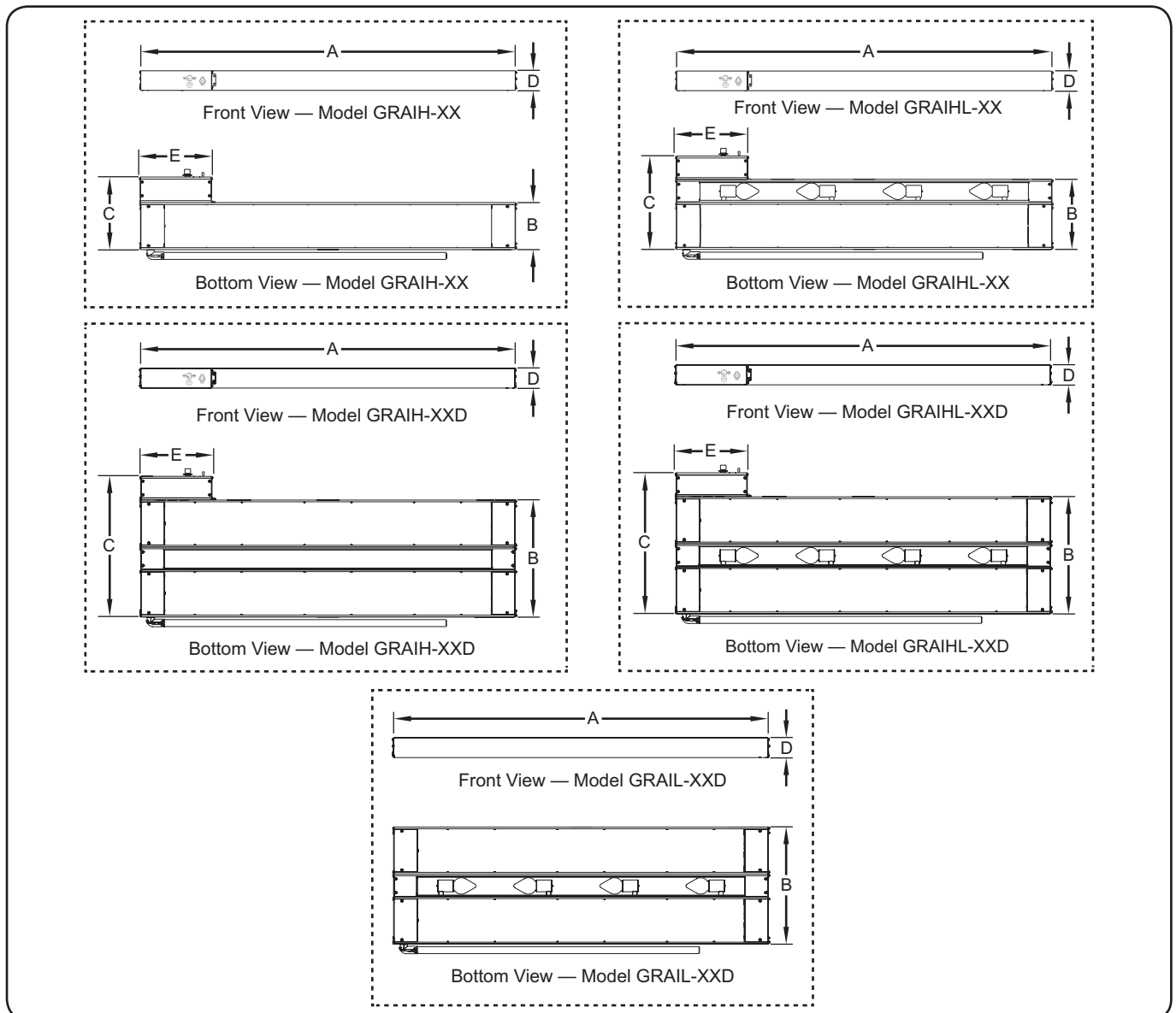
Light-equipped strip heaters that require a circuit breaker 20 amps or larger must be installed with a remote control enclosure containing a fuse rated at 20 amps or less for the light circuit.

## Dimensions

Model	Width (A)	Depth (B)	Depth (C)	Height (D)	Width (E)
GRAIH-XX	457–1829 mm (18"–72")	152 mm (6")	229 mm (9")	66 mm (2-5/8")	203 mm (8")
GRAIHL-XX	457–1829 mm (18"–72")	229 mm (9")	305 mm (12")	66 mm (2-5/8")	203 mm (8")
GRAIH-XXD ‡	457–1829 mm (18"–72")	381 mm (15")	457 mm (18")	66 mm (2-5/8")	203 mm (8")
GRAIHL-XXD ‡	457–1829 mm (18"–72")	381 mm (15")	457 mm (18")	66 mm (2-5/8")	203 mm (8")
GRAIL-XXD	1525 mm (60")	379 mm (15")	N/A	66 mm (2-5/8")	N/A

‡ Add 76 mm (3") to Depth (B) and Depth (C) if unit is configured with an optional 152 mm (6") spacer.

NOTE: Depth (C) dimension includes TCBI box.





## General

Use the information in this section to prepare for and install an Infra-Black® Strip Heater. Make sure to locate the specific information for the type of installation. Infra-Black Strip Heaters are shipped with most components pre-assembled. Dual units are supplied with a required 76 mm (3") or 152 mm (6") spacer pre-assembled at the factory.

### **WARNING**

**ELECTRIC SHOCK HAZARD:** Unit is not weatherproof. Locate the unit indoors where the ambient air temperature is a minimum of 21°C (70°F).

**FIRE HAZARD:** Do not install unit above or around combustible surfaces. Discoloration or combustion could occur. Unit must be installed in non-combustible surroundings only.

### **CAUTION**

Ensure safe and proper operation. Refer to the "Minimum Clearance Requirements" listed in the Installation section of this manual.

### **NOTICE**

Damage to countertop material such as Corian® and similar products caused by heat generated from Hatco equipment is not covered under the Hatco warranty. Contact the manufacturer of the countertop material for application information.

*NOTE: Contact the countertop manufacturer of the base material for application information and surface temperature limits before installing the unit.*

1. Remove the unit from the shipping carton and remove all packing materials.

*NOTE: To prevent delay in obtaining warranty coverage, complete online warranty registration. See the IMPORTANT OWNER INFORMATION section for details.*

2. Remove tape and protective packaging from all surfaces of the unit.

*NOTE: If the unit is configured with optional equipment, see the OPTIONS AND ACCESSORIES section in this manual.*

3. Refer to the appropriate mounting procedure in this section for the desired mounting style.

## Dual Mounting

When mounting units side-by-side, a space not less than 76 mm (3") must be maintained between units. Dual units ordered from the factory are shipped with a pre-assembled 76 mm (3") or 152 mm (6") spacer.

### **NOTICE**

**Installation of two or more separate units with less than 76 mm (3") between housings may result in premature failure of component parts. Failure to provide proper spacing may result in heat damage to electrical components and are not covered by warranty.**

## Under Shelf Mounting

When mounting a unit under a shelf, use adjustable angle brackets to assure proper spacing. Remote control enclosures are recommended to keep switches out of the heat zone and prevent premature failure.

## Pass-Through

If pass-through area is under 241 mm (9-1/2") deep, a single unit can be used. For a 254 to 483 mm (10" to 19") deep pass-through area, a dual unit is recommended. Installation of multiple units must have a minimum spacing of 76 mm (3") between strip heaters.

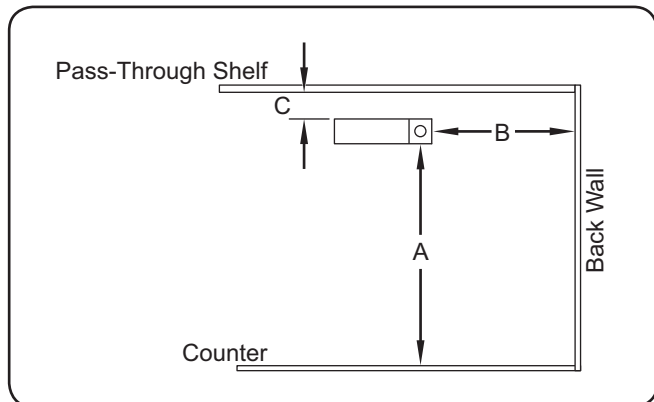
## Over Steam Table

When mounting over a steam table, a remote control enclosure must be installed.



## Minimum Clearance Requirements

Models	A	B	C
GRAIH and GRAIHL with TCBI	102 mm (4")	■	25 mm (1")
GRAIH and GRAIHL with RMB	102 mm (4")	76 mm (3")	0 mm (0")
GRAIHL-XXD, and GRAIL-XXD with TCBI	203 mm (8")	■	25 mm (1")
GRAIH-XXD, GRAIHL-XXD, and GRAIL-XXD with RMB	203 mm (8")	76 mm (3")	0 mm (0")

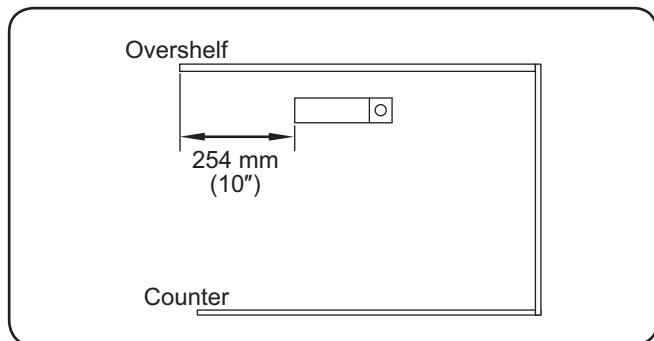


Minimum Clearance Requirements

- Must be a pass-through application, not allowed with back wall installation.

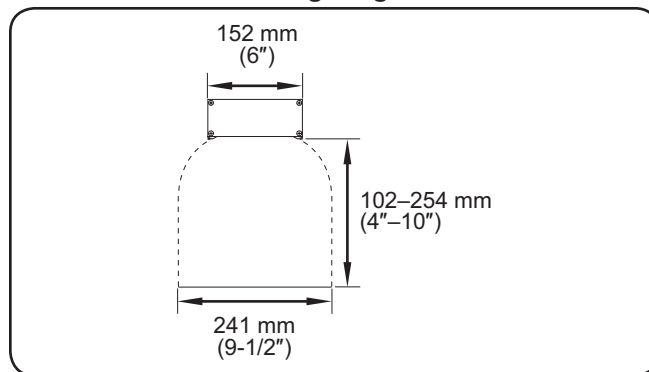
## Maximum Overshelf Clearance Requirements

Units should be mounted at a maximum distance of 254 mm (10") from the front of an overshelf.

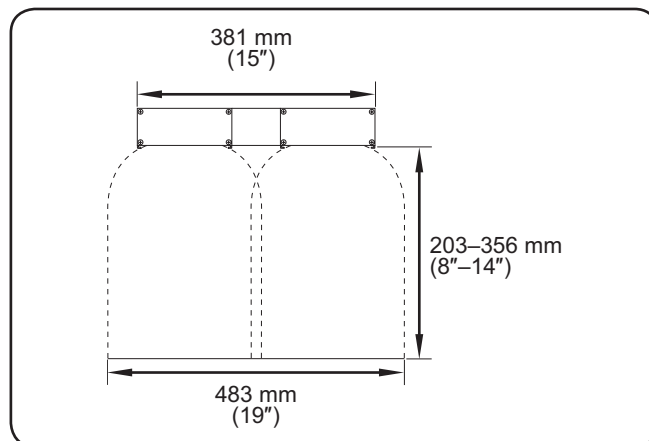


Maximum Overshelf Clearance Requirements

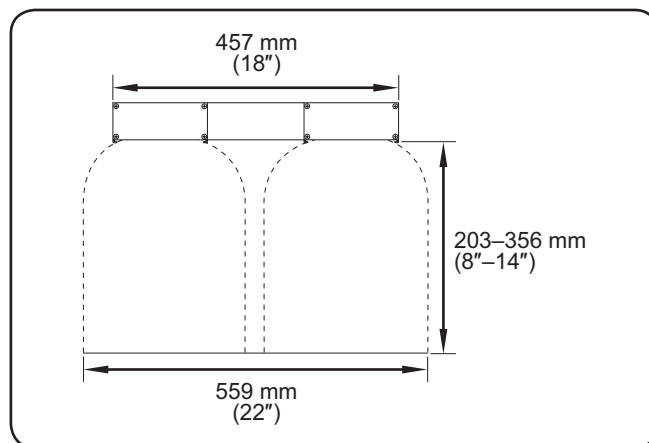
## Recommended Mounting Heights



Recommended Element Height for GRAIH-XX and GRAIHL-XX models



Recommended Element Height for GRAIH-XXD, GRAIHL-XXD, and GRAIL-XXD models with a 76 mm (3") spacer



Recommended Element Height for GRAIH-XXD and GRAIHL-XXD models with a 152 mm (6") spacer

## Tubular Stand Mounting

Mounting a unit with non-adjustable tubular stands permanently attaches the unit to a countertop or serving table.

### CAUTION

Ensure safe and proper operation. Refer to the “Minimum Clearance Requirements” listed in the Installation section of this manual.

Tubular stands are available in aluminum, *Designer* colors, or gloss finishes in heights of 102 to 356 mm (4" to 14") in 51 mm (2") increments.

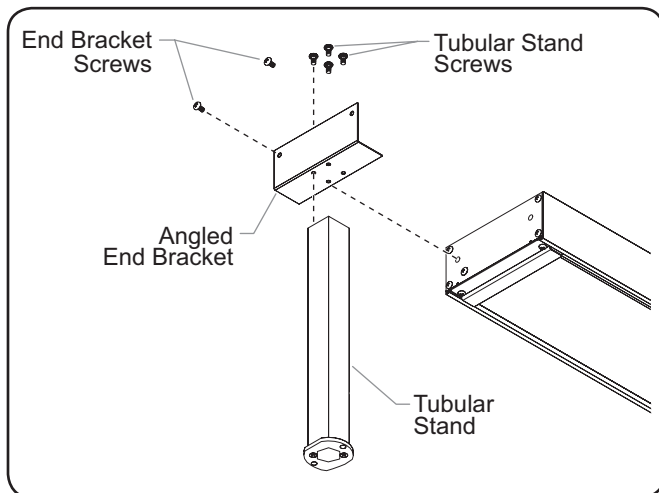
**NOTE:** Tubular stands cannot be retrofitted in the field.

1. Position the unit upside-down on a flat surface.

**NOTE:** Units for this application are supplied with the conduit attached to one side of the unit. Conduit should not be removed.

2. Secure the top of the tubular stand to the bottom of the angled end bracket using the screws supplied.
3. Secure the angled end bracket to the end plate of the unit with the previously removed hanger tab screws.
4. Repeat steps 2 and 3 on the opposite end of the unit.
5. Secure the stands to the mounting surface using appropriate fasteners.

**NOTE:** Two pairs of tubular stands will be needed for mounting dual units.



Tubular Stand Mounting

## Angle Bracket Mounting

Mounting a unit with an angle bracket permanently attaches the unit to the underside of a shelf. It can be mounted to a flat shelf or a shelf with rolled/flanged edges. The adjustable angle brackets will provide the necessary gap between the unit and a combustible shelf.

**NOTE:** Units can be mounted to a flat shelf or a shelf with rolled/flanged edges. The unit must be installed with the minimum 25 mm (1") clearance measured from the lowest part of the oversheaf. For example, a shelf with a 25 mm (1") flanged edge would require the unit to be installed 51 mm (2") below the underside of the shelf. If minimum distances are not maintained, damage to the surroundings and/or failure to the unit could occur.

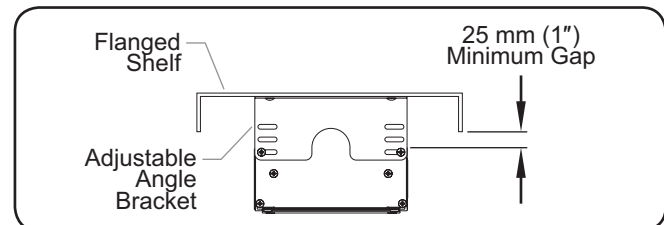
### CAUTION

Ensure safe and proper operation. Refer to the “Minimum Clearance Requirements” listed in the Installation section of this manual.

### NOTICE

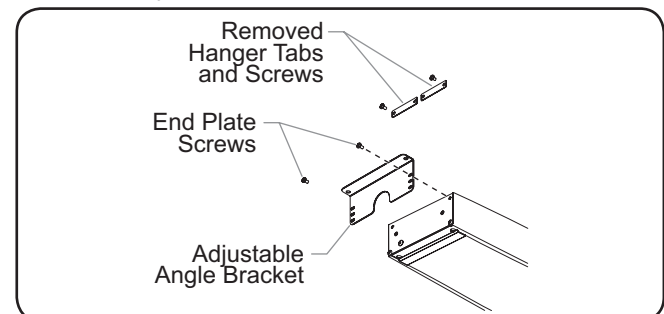
Damage to any countertop material caused by heat generated from Hatco equipment is not covered under the Hatco warranty. Contact manufacturer of countertop material for application information.

**NOTE:** When mounting the unit under a shelf, it is recommended to use a remote control enclosure.



Flat Shelf Installation

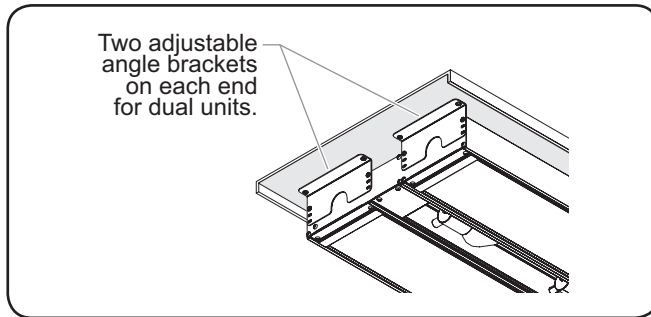
1. Position the unit on a flat surface with the heating element facing down.
2. Remove the two hanger tab screws and hanger tabs. These items will not be needed.
3. Remove the two upper end plate screws.
4. Align the adjustable angle bracket to the end plate mounting holes of the unit. Secure angle bracket with previously removed end plate screws.



Adjustable Angle Bracket Installation

5. Fasten the angle bracket to the underside of the shelf using appropriate fasteners (not supplied by Hatco).

**NOTE:** Two pairs of brackets will be needed for dual units.



Dual Unit Mounting

## Chain Suspension Mounting

Mounting a unit with chain suspension attaches the unit to an overhead surface with the use of “S” hooks.

**NOTE:** Units ordered with the “S” hook option come with two “S” hooks and two 152 mm (6”) lengths of chain. Additional chain (P/N 05.03.020.00) can be ordered from Hatco for the overhead mounting system or another option can be determined by a qualified installer.



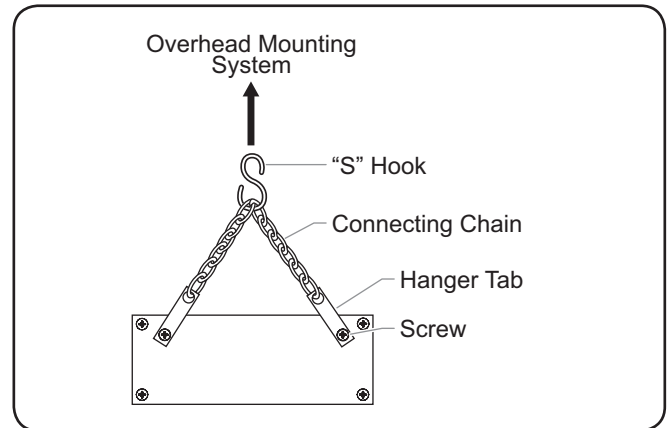
### WARNING

For installation with chains, make sure the chains have sufficient strength and are securely fastened to both the unit and the mounting location. Poorly installed chains may cause the unit to loosen and fall. Do not place anything on top of units installed with chains.

Ensure safe and proper operation. Refer to the “Minimum Clearance Requirements” listed in the Installation section of this manual.

**NOTE:** The strength of the chain supplied by Hatco is sufficient to hold the weight of the unit securely only when mounted properly.

1. Prepare the overhead mounting system for the “S” hooks. Make sure the system is secure and is set up so the unit will be suspended at a level, safe, and proper distance from walls, counter, and food.
2. Loosen, but do not remove the screws securing the hanger tabs on each end of the unit. Rotate the tabs up, then tighten the screws securely.
3. Securely attach one of the 152 mm (6”) connecting chains between each pair of hanger tabs.
4. Attach an “S” hook to the center of each connecting chain.
5. Carefully lift the unit and attach the “S” hooks on each end of the unit to the overhead mounting system. Make sure the unit is level.



“S” Hook Mounting

## Electrical Information

Refer to the Electrical Rating Charts in the SPECIFICATIONS section for unit specific information.

### **⚠ WARNING**

**ELECTRIC SHOCK HAZARD:** For hardwired units, all electrical connections must be in accordance with local electrical codes and any other applicable codes. Connections should be made by a qualified, licensed electrician.

### **⚠ CAUTION**

Strip heaters equipped with incandescent lights that require a circuit breaker larger than 20 amps for the heat element must have a separate circuit breaker for the incandescent lights that is 20 amps or less.

*NOTE: If the unit being installed is not shown or listed in this manual, refer to the wiring diagram supplied with the unit and the installation information on the unit for further instructions.*

## Power Supply

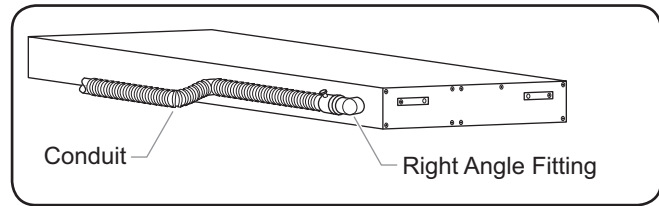
Install supply wire and connectors suitable for at least 90°C (194°F).

- Use a minimum of No. 14 AWG copper wire for individual circuits up to 15 amps.
- Use a minimum of No. 12 AWG copper wire for individual circuits 15 to 20 amps.
- Use a minimum of No. 10 AWG copper wire for individual circuits 20 to 25 amps.
- Use a minimum of No. 8 AWG copper wire for individual circuits 25 to 30 amps.

*NOTE: Refer to the wiring diagram supplied with the unit and specifications label attached to the unit for specific electrical information.*

## Conduit Connection

Units supplied with a right angle fitting and flexible conduit attached have had all internal connections completed at the factory. Attach the proper power supply leads to the high temperature lead wires in the conduit.



Conduit Connections

*NOTE: Refer to the wiring diagram supplied with the unit and specifications label attached to the unit for specific electrical information.*

## Remote Control Enclosures

Hatco remote control enclosures include switches, wire leads, and/or indicator lights and are ready for installation.

The RMB Series require one remote control enclosure per strip heater. The RMB2 Series allows multiple strip heaters to be connected to one remote control enclosure.

*NOTE: Remote control enclosures are available in several configurations depending on the model. All enclosures are built in accordance with UL standards to accommodate switches, indicator lights, and wiring. See the OPTIONS AND ACCESSORIES section in this manual for more information.*

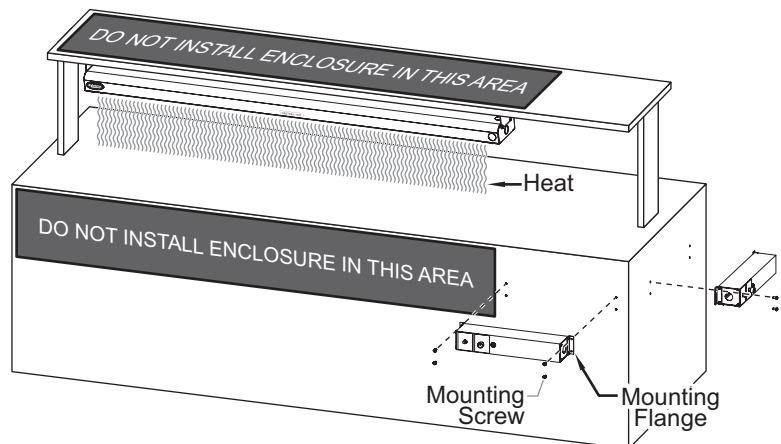
### **IMPORTANT NOTE:**

Remote mounted enclosures and control switches must be installed in a cool, dry location as far away from any heat zone as possible. Do not mount enclosures or switches directly on, under, or above unit. Do not mount enclosures or switches in direct contact with any heated surface or near any steam generating equipment.

*NOTE: When two or more units are mounted where the heat from one housing tends to raise the temperature of another, the control switches should be installed in a remote control enclosure. Units in a multiple installation should use remote mounted control switches.*

### **NOTICE**

**To prevent premature failure of components due to excessive heat, remote mounted control switches must be installed outside the strip heater heat zone.**



Remote Mounted Enclosure Installation Locations

## General

Glo-Ray® Infra-Black® Strip Heaters are designed for ease of operation. Use the following information and procedures to operate the unit.



**Read all safety messages in the IMPORTANT SAFETY INFORMATION section before operating this equipment.**



**BURN HAZARD:** Some exterior surfaces on the unit will get hot. Avoid unnecessary contact with unit.

## Controls

Infra-Black Strip Heaters are equipped with either a Thermostatic Control Box with Indicator Lights (TCBI) mounted on the unit or an optional remote control enclosure (RMB) mounted remotely. The following is a list of the available controls for either control configuration.

**I/O (ON/OFF) Toggle Switch**—Turns power on and off to the heating elements and/or the lights.

**Thermostatic Control**—Controls the temperature of the heating element(s). The thermostatic control is available only on a TCBI-equipped unit.

**Infinite Control**—Turns on the power and controls the output of the heating elements. The infinite control is available only on a remote control enclosure.

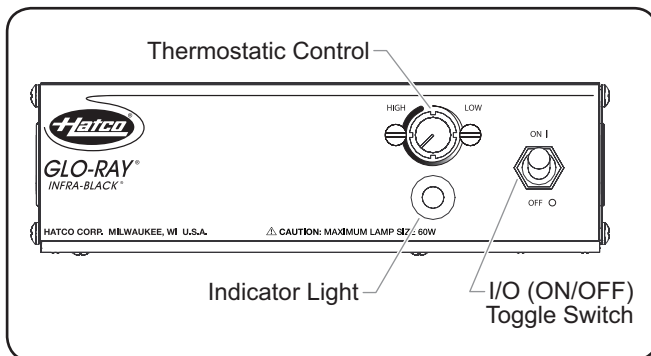
**Indicator Light**—Illuminates when power is on, shuts off when power is off.

## Startup

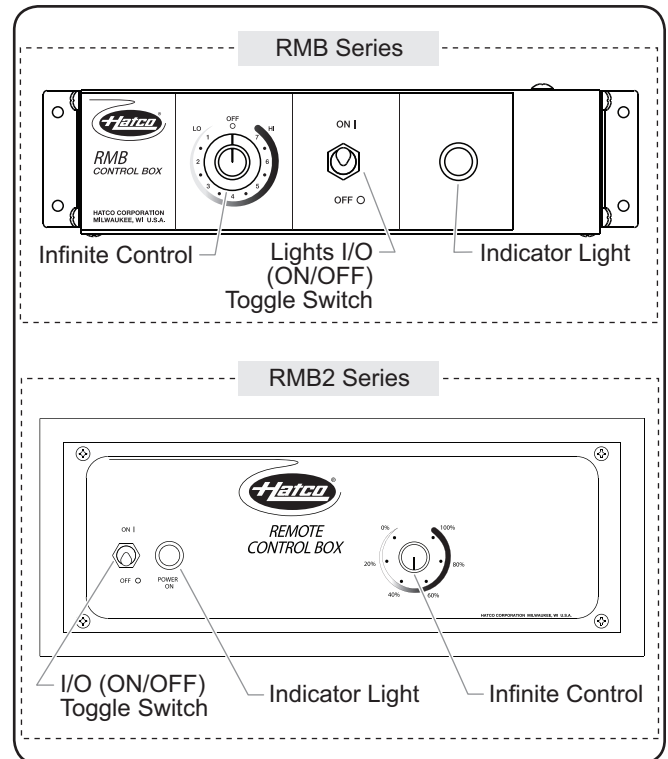
1. Move the I/O (ON/OFF) toggle switch to the I (ON) position and/or turn the infinite control(s) to the desired setting.
  - The indicator light (if equipped) will illuminate and the heating elements will energize.
2. For units with a thermostatic control, turn the control to the desired setting.

**NOTE:** Allow 15–20 minutes to reach operating temperature.

3. For units with display lights, move the lights I/O (ON/OFF) toggle switch to the I (ON) position to turn on the lights.



Thermostatic Control Box with Indicator Lights (TCBI)



Remote Control Enclosures

**NOTE:** Refer to the OPTIONS AND ACCESSORIES section for remote control enclosure information.

## Shutdown

1. Move the I/O (ON/OFF) toggle switch to the O (OFF) position and/or turn the infinite control(s) to the O (OFF) position.
  - The indicator light (if equipped) will shut off and the heating elements will shut down.
2. For units with display lights, move the lights I/O (ON/OFF) toggle switch to the O (OFF) position.

## General

Glo-Ray® Infra-Black® Strip Heaters are designed for maximum durability and performance with minimum maintenance.

### **⚠ WARNING**

#### **ELECTRIC SHOCK HAZARD:**

- Turn power OFF at fused disconnect switch/circuit breaker and allow unit to cool before performing any maintenance, adjustments, or cleaning.
- **DO NOT submerge or saturate with water. Unit is not waterproof. Do not operate if unit has been submerged or saturated with water.**
- **Do not steam clean or use excessive water on unit.**
- **This unit is not “jet-proof” construction. Do not use jet-clean spray to clean this unit.**

This unit has no “user-serviceable” parts. If service is required on this unit, contact an Authorized Hatco Service Agent or contact Hatco at (0512) 6732-5091.

Use only Genuine Hatco Replacement Parts when service is required. Failure to use Genuine Hatco Replacement Parts will void all warranties and may subject operators of the equipment to hazardous electrical voltage, resulting in electrical shock or burn. Genuine Hatco Replacement Parts are specified to operate safely in the environments in which they are used. Some aftermarket or generic replacement parts do not have the characteristics that will allow them to operate safely in Hatco equipment.

## Daily Cleaning

To preserve the finish of the Glo-Ray Infra-Black Strip Heater, it is recommended that all surfaces be cleaned daily.

### **NOTICE**

**Use non-abrasive cleaners only. Abrasive cleaners could scratch the finish of the unit, marring its appearance and making it susceptible to soil accumulation.**

1. Turn off the unit and allow the unit to cool.
2. Wipe down all metal surfaces with a clean, damp cloth. Stubborn stains may be removed with a good stainless steel or non-abrasive cleaner. Clean hard to reach areas using a small brush and mild soap.

## Replacing Display Light Bulbs

### **⚠ WARNING**

Use only light bulbs that meet or exceed National Sanitation Foundation (NSF) standards and are specifically designed for food holding areas. Breakage of light bulbs not specially coated could result in personal injury and/or food contamination.

The display light is an incandescent bulb that illuminates the warming area. This bulb has a special coating to guard against injury and food contamination in the event of breakage.

To replace a light bulb:

1. Disconnect the power supply and wait until the unit has cooled.
2. Unscrew the light bulb from the unit and replace it with a new, specially-coated incandescent light bulb.

*NOTE: Hatco shatter-resistant light bulbs meet NSF standards for food holding and display areas. For 220–240 volt applications, use Hatco P/N 02.30.058.00.*

**⚠ WARNING**

This unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.

**⚠ WARNING**

**ELECTRIC SHOCK HAZARD:** Turn power OFF at fused disconnect switch/circuit breaker and allow unit to cool before performing any maintenance, adjustments, or cleaning.

Symptom	Probable Cause	Corrective Action
Unit is turned I (ON) but there is no heat.	No power to unit.	Check circuit breaker and reset as necessary.
	Switch is defective.	Contact Authorized Service Agent or Hatco for assistance.
	Wiring is open.	Contact Authorized Service Agent or Hatco for assistance.
	Heating element defective.	Contact Authorized Service Agent or Hatco for assistance.
Heat is inadequate.	Unit mounted too high above target area.	Lower unit, putting effective heat closer to target.
	Excessive air movement around strip heater target area.	Restrict or redirect air movement (air conditioning duct or exhaust fan) away from unit.
	Incorrect power supply (low).	Check power supply to unit, making sure it matches rating on the unit. If power supply is incorrect, change to match rating on unit.
	Temperature control set too low.	Move temperature control to higher setting.
Heat is excessive.	Unit mounted too close to target area.	Check to see that installation is within specifications for type/model. Increase mounting height if too close.
	Voltage supply too high.	Check power supply to unit, making sure it matches rating on unit. If power supply is incorrect, change to match rating.
	Temperature control set too high.	Move temperature control to lower setting.
Control switches burn out rapidly.	Switches are mounted in the heat zone.	Check switch location per Hatco guidelines in this manual. Relocate switches to a cooler zone if installation is incorrect.
	Switches used are not Hatco supplied.	Genuine Hatco Parts are specified to operate safely and properly in the environment in which they are used. Contact Authorized Service Agent or Hatco to replace switches with Genuine Hatco Replacement Parts.

### Troubleshooting Questions?

If you continue to have problems resolving an issue, please contact the nearest Authorized Hatco Service Agency or Hatco for assistance. To locate the nearest Service Agency, log onto the Hatco website at [www.hatcocorp.com](http://www.hatcocorp.com), select the *Support* pull-down menu, and click on "Find A Service Agent"; or contact the **Hatco Parts and Service Team** at:

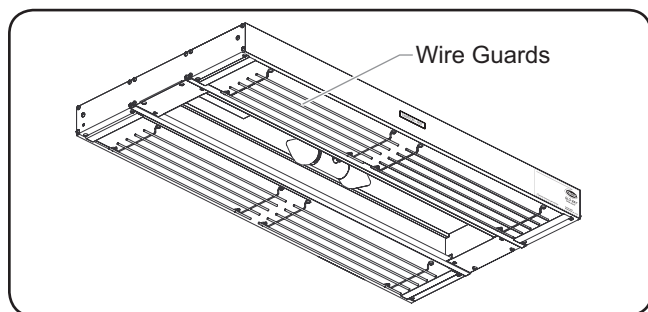
**Telephone: (0512) 6732-5091**

**e-mail: [infocn@hatcocorp.com](mailto:infocn@hatcocorp.com)**



## Element Wire Guard

Element Wire Guards are available as a factory-installed option. Element Wire Guards protect users from incidental contact with the heated surface. GRAIH-XXD and GRAIHL-XXD require two sets of wire guards.



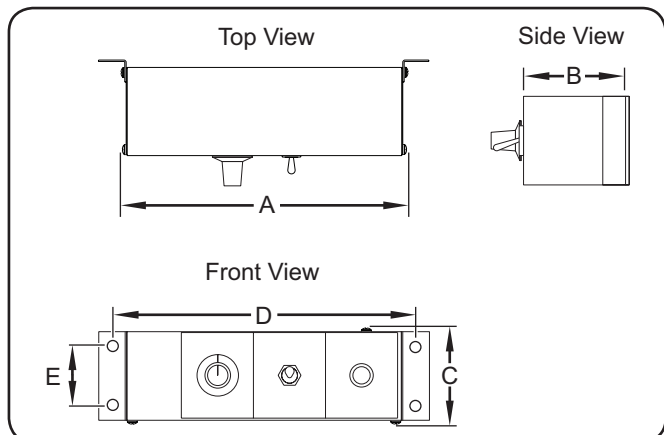
GRAIHL-XXD with Element Wire Guards

## Remote Control Enclosure — RMB Series

RMB Series remote control enclosures are available in various sizes and configurations for use with strip heaters. Remote control enclosures locate controls away from the constant heat of the unit, increasing the life span of the controls. All models are built in accordance with UL standards with switches, indicator lights, and wiring. Consult the factory for type and location of RMB Series controls for enclosure.

**NOTE:** RMB Series remote control enclosures require one remote control enclosure per strip heater.

Models	Width (A)	Depth (B)	Height (C)	Screw Width (D)	Screw Height (E)
RMB-3 Series	150 mm (5-15/16")	76 mm (3")	67 mm (2-5/8")	161 mm (6-5/16")	41 mm (1-5/8")
RMB-7 Series	239 mm (9-3/8")	76 mm (3")	67 mm (2-5/8")	249 mm (9-13/16")	41 mm (1-5/8")
RMB-14 Series	366 mm (14-3/8")	76 mm (3")	67 mm (2-5/8")	376 mm (14-13/16")	41 mm (1-5/8")
RMB-16 Series	417 mm (16-3/8")	76 mm (3")	67 mm (2-5/8")	427 mm (16-13/16")	41 mm (1-5/8")
RMB-20 Series	518 mm (20-3/8")	76 mm (3")	67 mm (2-5/8")	529 mm (20-13/16")	41 mm (1-5/8")



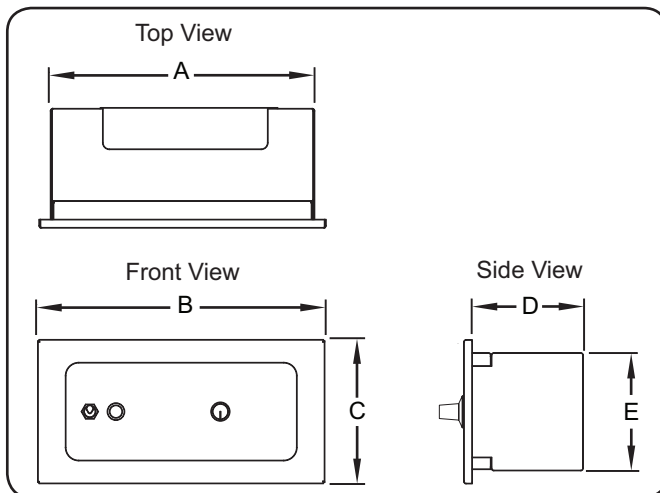
Dimensions — RMB Series

## Remote Control Enclosure — RMB2 Series

RMB2 Series remote control enclosures allow multiple strip heaters to be wired to and controlled by a single enclosure. The total amp draw of all connected strip heaters cannot exceed the rating of the remote control enclosure. Consult the factory for information regarding the proper RMB2 Series remote control enclosure for a specific application.

### RMB2 Series Dimensions

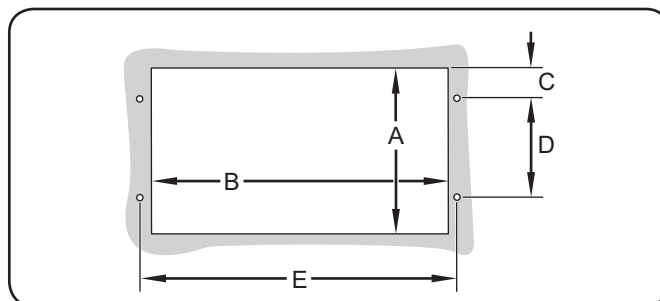
Models	Width (A)	Width (B)	Height (C)	Depth (D)	Height (E)
RMB2-1R	257 mm (10-1/8")	279 mm (11")	140 mm (5-1/2")	109 mm (4-1/4")	116 mm (4-5/8")
RMB2-2R	333 mm (13-1/8")	356 mm (14")	140 mm (5-1/2")	109 mm (4-1/4")	116 mm (4-5/8")



Dimensions — RMB2 Series

### RMB2 Series Cutout Dimensions

Models	Opening Cutout Dimensions		Screw Hole Dimensions		
	(A)	(B)	(C)	(D)	(E)
RMB2-1R	121 mm (4-3/4")	257 mm (10-1/8")	29 mm (1-1/8")	64 mm (2-1/2")	265 mm (10-7/16")
RMB2-2R	121 mm (4-3/4")	333 mm (13-1/8")	29 mm (1-1/8")	64 mm (2-1/2")	341 mm (13-7/16")



Cutout Dimensions — RMB2 Series

**1. PRODUCT WARRANTY**

Hatco warrants the products that it manufactures (the "Products") to be free from defects in materials and workmanship, under normal use and service, for a period of one (1) year from the date of purchase when installed and maintained in accordance with Hatco's written instructions or 18 months from the date of shipment from Hatco. Buyer must establish the Product's purchase date by registering the Product with Hatco or by other means satisfactory to Hatco in its sole discretion.

Hatco warrants the following Product components to be free from defects in materials and workmanship from the date of purchase (subject to the foregoing conditions) for the period(s) of time and on the conditions listed below:

**a) Two (2) Year Parts Warranty:**

Conveyor Toaster Elements (metal sheathed)  
 Drawer Warmer Elements (metal sheathed)  
 Drawer Warmer Drawer Rollers and Slides  
 Strip Heater Elements (metal sheathed)  
 Display Warmer Elements (metal sheathed air heating)  
 Holding Cabinet Elements (metal sheathed air heating)  
 Heated Well Elements — HW and HWB Series  
 (metal sheathed)

**b) Five (5) Year Parts Warranty:**

3CS and FR Tanks

**c) Ten (10) Year Parts Warranty:**

Electric Booster Heater Tanks  
 Gas Booster Heater Tanks

**d) Ninety (90) Day Parts Warranty:**

Replacement Parts

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR PATENT OR OTHER INTELLECTUAL PROPERTY RIGHT INFRINGEMENT. Without limiting the generality of the foregoing, SUCH WARRANTIES DO NOT COVER: Coated incandescent light bulbs, fluorescent lights, heat lamp bulbs, coated halogen light bulbs, halogen heat lamp bulbs, xenon light bulbs, LED light tubes, glass components, and fuses; Product failure in booster tank, fin tube heat exchanger, or other water heating equipment caused by liming, sediment buildup, chemical attack, or freezing; or Product misuse, tampering or misapplication, improper installation, or application of improper voltage.

**2. LIMITATION OF REMEDIES AND DAMAGES**

Hatco's liability and Buyer's exclusive remedy hereunder will be limited solely to replacement of part or Product using, at Hatco's option, new or refurbished parts or Product by Hatco or a Hatco-authorized service agency with respect to any claim made within the applicable warranty period referred to above. Hatco reserves the right to accept or reject any such claim in whole or in part. In the context of this Limited Warranty, "refurbished" means a part or Product that has been returned to its original specifications by Hatco or a Hatco-authorized service agency. Hatco will not accept the return of any Product without prior written approval from Hatco, and all such approved returns shall be made at Buyer's sole expense. HATCO WILL NOT BE LIABLE, UNDER ANY CIRCUMSTANCES, FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING BUT NOT LIMITED TO LABOR COSTS OR LOST PROFITS RESULTING FROM THE USE OF OR INABILITY TO USE THE PRODUCTS OR FROM THE PRODUCTS BEING INCORPORATED IN OR BECOMING A COMPONENT OF ANY OTHER PRODUCT OR GOODS.

**SERVICE INFORMATION**

The warranty on this Hatco unit is for one year from date of purchase or eighteen months from date of shipping from Hatco, whichever occurs first.

If you experience a problem with this unit during the warranty period, please do the following:

**Contact Local Hatco Dealer**

When contacting the Hatco dealer for service assistance, please supply the dealer with the following information to ensure prompt processing:

- Model of unit
- Serial number (located on the unit)
- Specific problem with the unit
- Date of purchase
- Name of business
- Shipping address
- Contact name and phone number

The Hatco dealer will do the following:

- Provide replacement part(s) as required
- Submit warranty claim to Hatco for processing

**Non-Warranty Problems**

If you experience a non-warranty problem that requires assistance, please contact the nearest Authorized Hatco Service Agency.

To locate the nearest Service Agency:

- call Hatco at (0512) 6732-5091
- e-mail Hatco at [infocn@hatcocorp.com](mailto:infocn@hatcocorp.com)

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## 使用者重要注意事项

请在下面空白处记录产品型号、序列号（规格标签位于设备一侧）。致电 Hatco 要求服务帮助时请提供上述信息。

型号 \_\_\_\_\_

序列号 \_\_\_\_\_

电压 \_\_\_\_\_

购买日期 \_\_\_\_\_

工作时间： 北京时间 上午 9:00 – 下午 6:00 周一至周五

电话： (0512) 6732-5091

E-mail: infocn@hatcocorp.com

查询更多信息请访问我们的网站: [www.hatcocorp.com](http://www.hatcocorp.com)

## 简介

Glo-Ray® Infra-Black® 长条形保温灯可确保将食物保温最长时间，而且能够最大限度地避免食源性疾病的风险。使用 Glo-Ray 预集中加热模式，在适当温度下保存食物，能够优化食品安全和质量。Glo-Ray Infra-Black 发射体提供有效的热量均匀分布表面，是有限空间操作的理想之选。

金属护层加热元件位于 Infra-Black 发射体中，保证两年内不会烧毁。

Glo-Ray Infra-Black 长条形保温灯经过了大量的研究和现场测试考验。每件设备在发货前都经过严格的检验和测试。

本手册包含 Glo-Ray Infra-Black 长条形保温灯的安装、安全和操作说明。在安装或操作设备之前，赫高建议您先阅读本手册中所有的安装、操作和安全说明。

本手册中的安全信息采用以下标志表示：



**警告**

“警告”表示有危险情况，如果不加以避免，则可能导致人身伤亡。



**小心**

“小心”表示有危险情况，如果不加以避免，则可能导致轻度或中度人身伤害。

**注意**

“注意”用于提示不会涉及人身伤害的操作。



使用本设备前，请仔细阅读下列重要安全事项，以免造成严重的人身伤亡及设备或财产的损坏。



### 警告

#### 触电危险：

- 出厂时不带电线和插头的设备需要硬连线到现场的电路系统。连接电源时必须妥当接地，并且符合设备电气规格中的正确电压、规格和配置。与具有资格的电工联系，由其决定并按照正确的电气连接方式进行安装。
- 在进行任何维护、调整或清洁工作之前，请先关闭熔断式开关/断路器电源，并使设备冷却。
- 对于硬连接设备，所有电气连接必须符合当地的电气规程和其他所有适用规程。连接应由具有资格和执照的电工进行。
- 禁止将设备浸入水中。本设备不防水。严禁使用被水浸过的设备。
- 本设备不具备耐候性。请将本设备置于室内，室内气温不得低于(21°C) 70°F。
- 不得用蒸汽或使用过多的水清洁设备。
- 本设备不具备防喷淋结构。请勿使用喷淋头清洁本设备。
- 请勿用电源线拖拽本设备。
- 请不要在设备通电或尚未冷却时进行清洁。
- 维修时只能使用正品HATCO更换零部件。未使用正品HATCO更换零部件会导致质保失效及造成设备操作人员受到有害电压威胁，并引起触电或着火。正品HATCO更换零部件可以保证使用环境下的安全生产，某些普通零部件不具备相关特性，从而无法保证在HATCO设备的安全使用。

#### 火灾隐患：

- 请勿将设备安装在易燃表面上方或附近。否则可能会导致变色或着火。设备只能安装在不易燃环境中。
- 在该设备或其他任何装置附近，请勿储存或使用汽油或其他可燃蒸汽或液体。



### 警告

仅可使用达到或超过美国国家卫生基金会 (NSF) 标准且专为食品存放区设计的灯泡。无特殊涂层的灯泡一旦破碎，可能造成人员伤害和/或食品污染。

如使用悬挂链安装，确保悬挂链具有足够强度，且与长条形保温灯和装配位置的连接足够牢固。如悬挂链安装不牢，会导致保温灯松开掉落。使用悬挂链安装时，请勿在保温灯上放置任何物品。

确保所有操作人员受过安全正确使用设备的培训。

本设备未针对儿童和体质偏弱、过敏和精神失常人群使用做相应设计。确保对儿童进行适当看管，使他们远离设备。

本设备不含“用户维修”零部件。如需维修，请联系HATCO授权服务机构或HATCO服务部门，电话 (0512) 6732-5091；传真 (0512) 6732-5092。



### 小心

烫伤危险：本设备的某些外表面处温度较高，接触这些部位时请务必小心。

首次启动设备，标准及经批准的制造用油可能会导致设备冒烟，长达 30 分钟。这只是暂时状态。在不放入食品的情况下继续运行设备，直至烟雾消散。

对于需要 20 安培或以上断路器的配灯长条形保温灯，必须安装远程控制机柜，且其中装有小于或等于 20 安培的断路器用于照明电路。

确保安全正确地操作。请参阅本手册的“安装”部分列出的“最小间隙要求”。

### 注意

因为赫高设备产生热量造成的 Corian® 等台面材料或类似产品的损伤，都不在赫高的保修范围内。请联系台面材料厂家，获取应用信息。

远程安装的控制箱必须安装在条形保温灯加热区之外，防止因过度加热导致元件过早损坏。

安装两个或两个以上单独设备时，如设备外壳间隔小于 76 毫米（3 英寸），可能会导致元件过早损坏。如不能保证适当间距，可能会导致电器元件出现热损伤且不在保修范围内。

只允许使用非摩擦性清洁剂。摩擦性清洁剂可能会刮伤本设备的表面处理层，破坏其外观，并易使表面积尘。

请勿将设备置于气流过急的环境中。避免将设备放在空气流动或气流活跃的区域（即排气扇/排风罩、空调管和外门附近）。

## 总则

Glo-Ray® Infra-Black® 长条形保温灯是近距离食品保温领域的完美选择。Infra-Black 发射体中的金属护层加热元件散发热量，并均匀传递到发射体的整个表面。发射体发出的热量向下传递到食品。

Glo-Ray Infra-Black 长条形保温灯采用铝质外壳构造，长度为 457 毫米（8 英寸）到 1829 毫米（72 英寸）。

双元件型号支持并排装配两台加热元件，提供了更大保温区域。双元件型号采用在加热元件之间放置 76 毫米（3 英寸）或 152 毫米（6 英寸）垫片。

Glo-Ray Infra-Black 长条形保温灯都有多个装配选件和开关位置。可以在设备上安装带指示灯的温度控制箱 (TCBI)，配有温度控制、I/O（打开/关闭）开关和指示灯。可以为远程控制机柜 (RMB) 配备无限控制、I/O（打开/关闭）开关和/或指示灯。为设备提供多种可选的 *Designer* 颜色和光滑表面。

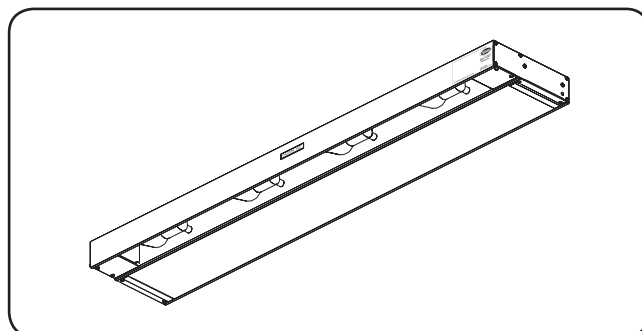
**GRAIH-XX:** 铝质外壳、单元件

**GRAIHL-XX:** 铝质外壳、白炽灯、单元件

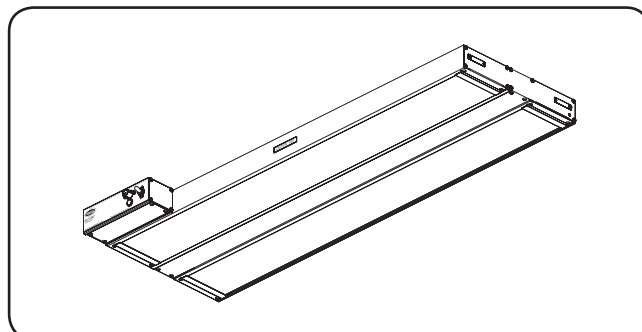
**GRAIH-XXD:** 铝质外壳、双元件

**GRAIHL-XXD:** 铝质外壳、白炽灯、双元件

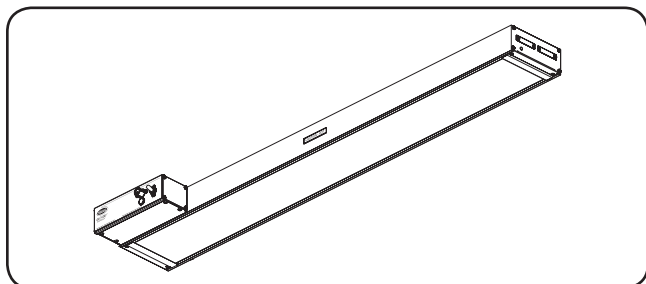
**GRAIL-XXD:** 铝质外壳、白炽灯、双元件



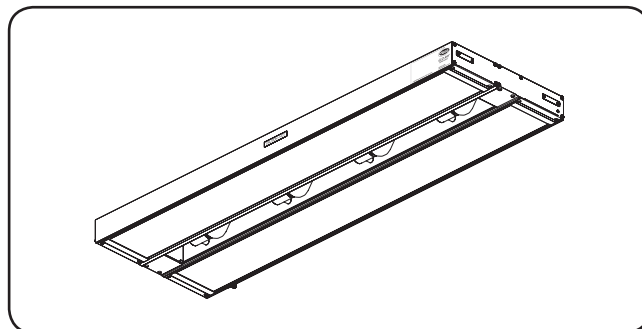
GRAIHL-XX 型号



GRAIH-XXD 型号 (带 TCBI)

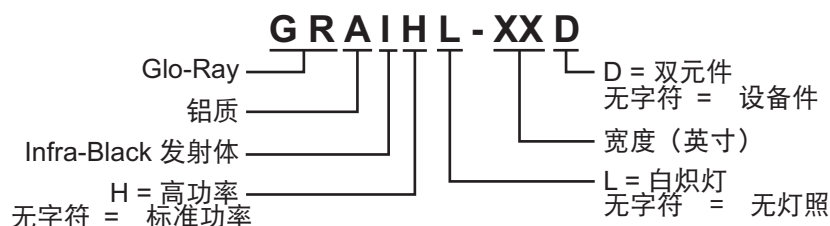


GRAIH-XX 型号 (带 TCBI)



GRAIL-XXD 和 GRAIHL-XXD 型号

## 型号命名



电气参数表 — GRAIH-XX 型号

型号	电压	功率	电流	出厂重量
GRAIH-18	220	350	1.6	3 kg (6 lbs.)
	240		1.5	
GRAIH-24	220	500	2.3	5 kg (11 lbs.)
	240		2.1	
GRAIH-30	220	660	3.0	6 kg (13 lbs.)
	240		2.8	
GRAIH-36	220	800	3.6	7 kg (15 lbs.)
	240		3.3	
GRAIH-42	220	950	4.3	8 kg (17 lbs.)
	240		4.0	
GRAIH-48	220	1100	5.0	10 kg (21 lbs.)
	240		4.6	
GRAIH-54	220	1250	5.7	11 kg (24 lbs.)
	240		5.2	
GRAIH-60	220	1400	6.4	12 kg (27 lbs.)
	240		5.8	
GRAIH-66	220	1560	7.1	14 kg (30 lbs.)
	240		6.5	
GRAIH-72	220	1725	7.8	15 kg (33 lbs.)
	240		7.2	

电气参数表 — GRAIHL-XX 型号

型号	电压	功率	电流	出厂重量
GRAIHL-18	220	450	2.0	5 kg (12 lbs.)
	240	470	2.0	
GRAIHL-24	220	600	2.7	7 kg (15 lbs.)
	240	620	2.6	
GRAIHL-30	220	760	3.5	8 kg (17 lbs.)
	240	780	3.3	
GRAIHL-36	220	950	4.3	9 kg (20 lbs.)
	240	980	4.1	
GRAIHL-42	220	1100	5.0	10 kg (23 lbs.)
	240	1130	4.7	
GRAIHL-48	220	1300	5.9	12 kg (26 lbs.)
	240	1340	5.6	
GRAIHL-54	220	1450	6.6	13 kg (29 lbs.)
	240	1490	6.2	
GRAIHL-60	220	1650	7.5	15 kg (33 lbs.)
	240	1700	7.1	
GRAIHL-66	220	1810	8.2	15 kg (34 lbs.)
	240	1860	7.8	
GRAIHL-72	220	2025	9.2	16 kg (36 lbs.)
	240	2085	8.7	

注意：运输重量不包括远程控制机柜。根据远程控制机柜的尺寸，将运输重量增加 1–3 千克（2–8 磅）。



对于需要 20 安培或以上断路器的配灯长条形保温灯，必须安装远程控制机柜，且其中装有小于或等于 20 安培的断路器用于照明电路。



电气参数表 — GRAIH-XXD 型号

型号	电压	功率	电流	出厂重量
GRAIH-18D	220	700	3.2	6 kg (13 lbs.)
	240		2.9	
GRAIH-24D	220	1000	4.5	9 kg (19 lbs.)
	240		4.2	
GRAIH-30D	220	1320	6.0	10 kg (21 lbs.)
	240		5.5	
GRAIH-36D	220	1600	7.3	11 kg (24 lbs.)
	240		6.7	
GRAIH-42D	220	1900	8.6	12 kg (27 lbs.)
	240		7.9	
GRAIH-48D	220	2200	10.0	15 kg (32 lbs.)
	240		9.2	
GRAIH-54D	220	2500	11.4	16 kg (35 lbs.)
	240		10.4	
GRAIH-60D	220	2800	12.7	18 kg (39 lbs.)
	240		11.7	
GRAIH-66D	220	3120	14.2	19 kg (42 lbs.)
	240		13.0	
GRAIH-72D	220	3450	15.7	21 kg (46 lbs.)
	240		14.4	

电气参数表 — GRAIHL-XXD 型号

型号	电压	功率	电流	出厂重量
GRAIHL-18D	220	800	3.6	8 kg (18 lbs.)
	240	820	3.4	
GRAIHL-24D	220	1100	5.0	10 kg (21 lbs.)
	240	1120	4.7	
GRAIHL-30D	220	1420	6.5	10 kg (23 lbs.)
	240	1440	6.0	
GRAIHL-36D	220	1750	8.0	12 kg (27 lbs.)
	240	1780	7.4	
GRAIHL-42D	220	2050	9.3	14 kg (30 lbs.)
	240	2080	8.7	
GRAIHL-48D	220	2400	10.9	16 kg (35 lbs.)
	240	2440	10.2	
GRAIHL-54D	220	2700	12.3	17 kg (38 lbs.)
	240	2740	11.4	
GRAIHL-60D	220	3050	13.9	19 kg (42 lbs.)
	240	3100	12.9	
GRAIHL-66D	220	3370	15.3	20 kg (44 lbs.)
	240	3420	14.3	
GRAIHL-72D	220	3750	17.0	22 kg (48 lbs.)
	240	3810	15.9	

电气参数表 — GRAIL-XXD 型号

型号	电压	功率	电流	出厂重量
GRAIL-60D	220	1440	6.5	19 kg (42 lbs.)
	230	1575	6.8	



小心

对于需要 20 安培或以上断路器的配灯长条形保温灯，必须安装远程控制机柜，且其中装有小于或等于 20 安培的断路器用于照明电路。

注意：运输重量不包括远程控制机柜。根据远程控制机柜的尺寸，将运输重量增加 1–3 千克（2–8 磅）。

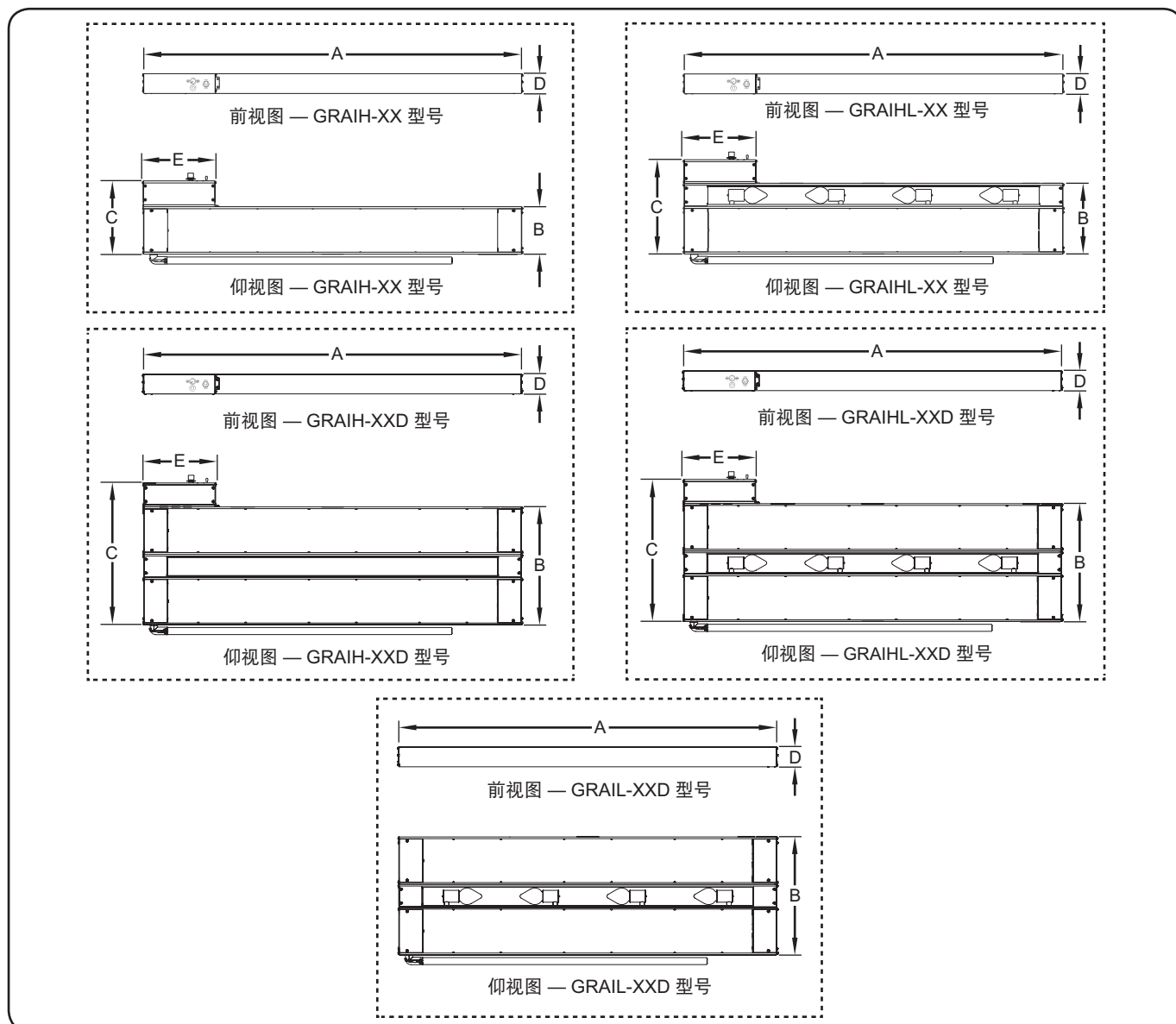
注意：运输重量含包装。



## 尺寸

型号	宽度 (A)	深度 (B)	深度 (C)	高度 (D)	宽度 (E)
GRAIH-XX	457-1829 mm (18"-72")	152 mm (6")	229 mm (9")	66 mm (2-5/8")	203 mm (8")
GRAIHL-XX	457-1829 mm (18"-72")	229 mm (9")	305 mm (12")	66 mm (2-5/8")	203 mm (8")
GRAIH-XXD ‡	457-1829 mm (18"-72")	381 mm (15")	457 mm (18")	66 mm (2-5/8")	203 mm (8")
GRAIHL-XXD ‡	457-1829 mm (18"-72")	381 mm (15")	457 mm (18")	66 mm (2-5/8")	203 mm (8")
GRAIL-XXD	1525 mm (60")	379 mm (15")	N/A	66 mm (2-5/8")	N/A

‡ 如果设备配备了可选的 152 毫米 (6 英寸) 垫片, 则将深度 (B) 和深度 (C) 增加配备了可选的 152 毫米 76 毫米 (3 英寸)。  
注意: 深度 (C) 尺寸包含 TCBI 箱。



## 总则

使用此部分中的信息准备和安装 Infra-Black® 长条形保温灯。确保对应安装类型的信息。Infra-Black 长条形保温灯的大多数组件都是预先装配。在工厂中，双设备预装有所需的 76 毫米（3 英寸）或 152 毫米（6 英寸）的垫片。

### 警告

**触电危险：** 本设备不防水。 将设备置于环境气温最低为 21°C (70°F) 的室内。

**火灾隐患：** 请勿将设备安装在易燃表面上方或附近。 否则可能会导致变色或着火。 设备只能安装在不易燃环境中。

### 小心

确保安全正确地操作。 请参阅本手册的“安装”部分列出的“最小间隙要求”。

### 注意

因为赫高设备产生热量造成的 Corian® 等台面材料或类似产品的损伤，都不在赫高的保修范围内。 请联系台面材料厂家，获取应用信息。

注意：在安装设备之前，请联系台面基材厂家，获取应用信息和表面温度限制。

1. 从装运箱中取出设备并去除所有包装材料。

注意：为防止延误保修，请完成在线保修登记。 有关 详情，请参阅“物主重要信息”部分。

2. 去除设备所有表面的胶带及保护性包装。

注意：如果设备配备了可选设备，请参阅本手册的“选件及配件”部分。

3. 请参阅此部分中适合所需装配方式的装配程序。

## 双设备装配

并排装配设备时，设备之间必须保留不少于 76 毫米（3 英寸）的间距。 从工厂订购的双设备预装有 76 毫米（3 英寸）的垫片。

### 注意

安装两个或两个以上单独设备时，如设备外壳间隔小于 76 毫米（3 英寸），可能会导致元件过早损坏。 如不能保证适当间距，可能会导致电器元件出现热损伤且不在保修范围内。

## 架下装配

在架子下方装配设备时，请使用可调节角度的支架来确保适当的间距。 建议使用远程控制机柜，保持开关远离加热区，防止过早损坏。

## 递菜口

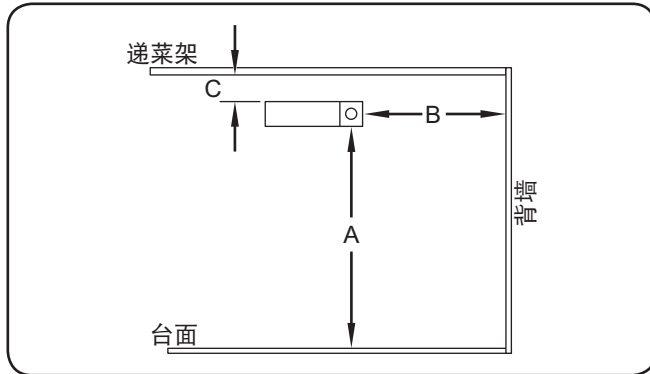
如果递菜口区域高度在 241 毫米（9-1/2 英寸）以下，可以使用一台设备。 对于高度在 254 到 483 毫米（10 到 19 英寸）的递菜口区域，建议使用双设备。 安装多个设备时，长条形保温灯间至少保留 76 毫米（3 英寸）的间距。

## 保温食品台上

安装在保温食品台上时，必须按照远程控制机柜。

## 最小间距要求

型号	A	B	C
GRAIH 和 GRAIHL (带 TCBI)	102 mm (4")	■	25 mm (1")
GRAIH 和 GRAIHL 配备 RMB	102 mm (4")	76 mm (3")	0 mm (0")
GRAIHL-XXD和 GRAIL-XXD 配备 TCBI	203 mm (8")	■	25 mm (1")
GRAIH-XXD、 GRAIHL-XXD和 GRAIL-XXD 配备 RMB	203 mm (8")	76 mm (3")	0 mm (0")

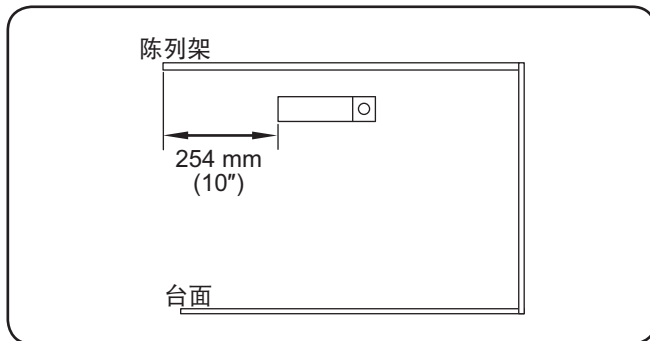


最小间距要求

- 只能用于递菜口，不允许在有背墙的环境下安装。

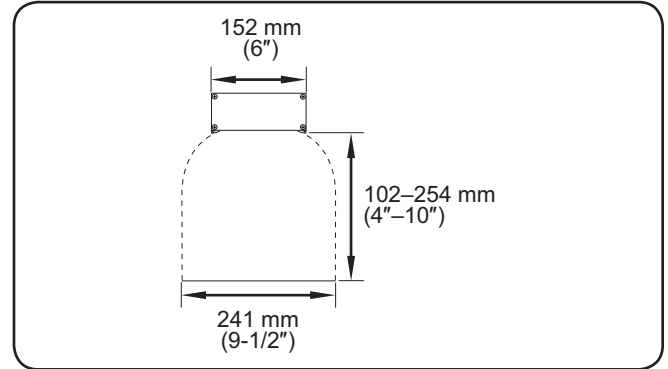
## 最大陈列架间距要求

装配设备时，与陈列架正面的最大距离为 254 毫米（10 英寸）。

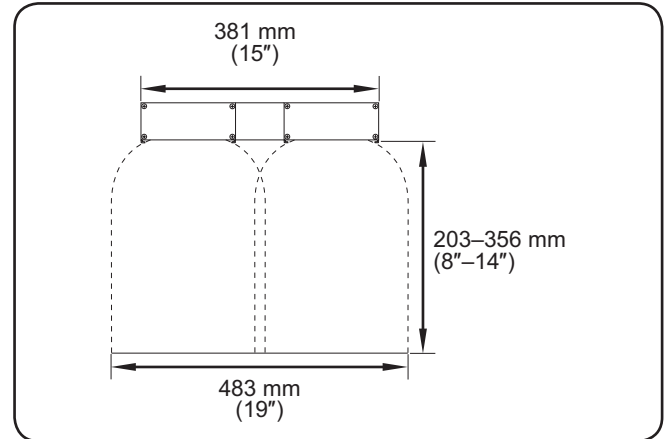


最大陈列架间距要求

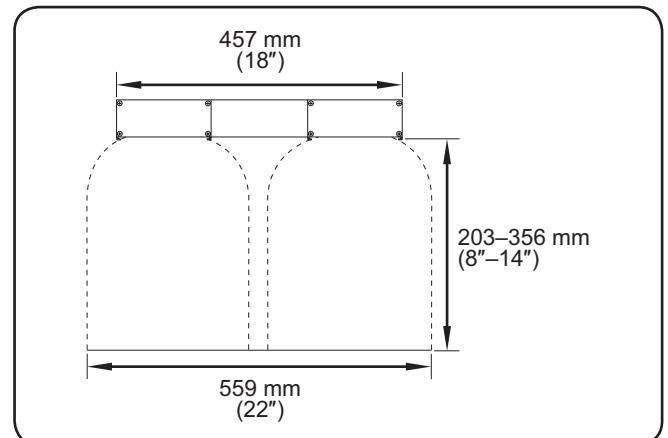
## 建议安装高度



GRAIH-XX 和 GRAIHL-XX 型号的建议元件高度



带有 76 毫米（3 英寸）垫片的 GRAIH-XXD、GRAIHL-XXD 和 GRAIL-XXD 型号的建议元件高度



带有 152 毫米（6 英寸）垫片的 GRAIH-XXD 和 GRAIHL-XXD 型号的建议元件高度

## 管状机架装配

如使用不可调节的管状机架装配设备，会将设备永久安装在台面或操作台上。



小心

确保安全正确地操作。请参阅本手册的“安装”部分列出的“最小间隙要求”。

管状机架为铝质，*Designer* 配色或光滑表层，高度为 102 至 356 毫米（4 至 14 英寸），高度增量为 51 毫米（2 英寸）。

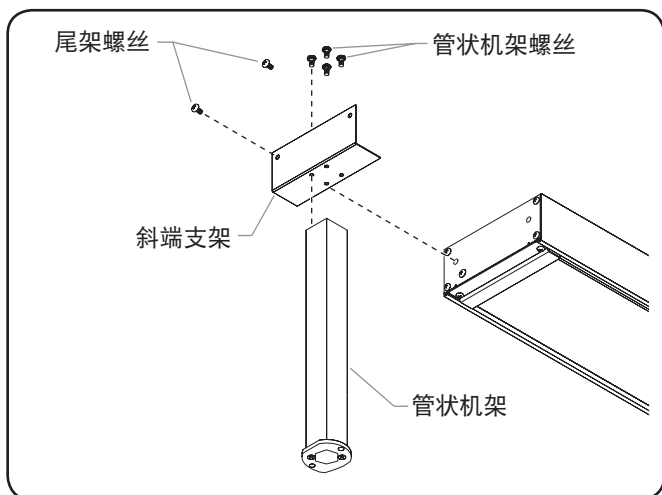
注意：不得在现场改造管状机架。

1. 在平面上倒放设备。

注意：这种应用的设备都在设备一侧配备管道。管道不能移除。

2. 使用配备的螺丝，将管状机架顶部固定到角度支架的一端。
3. 使用之前拆下的挂件螺丝，将角度支架板固定到设备的端板。
4. 在设备另一侧，重复步骤 2 和 3。
5. 使用适当的紧固件，将支架固定在装配表面。

注意：安装双设备需要两副管状机架。



管状机架装配

## 斜端支架装配

如使用角度支架装配设备，会将设备永久安装在架子下方。设备可以安装在平面架子或有卷边/法兰边缘的架子上。可调节角度支架保证了设备和易燃架子之间的必要间距。

注意：设备可以安装一个平面架子或有卷边/法兰边缘的架子上。安装设备时，它与上方架子的最低部分之间必须保证最小 25 毫米（1 英寸）的间距。例如，对于配备 25 毫米（1 英寸）法兰边缘的架子，设备必须安装在架子下方 51 毫米（2 英寸）的位置。如果不能保证最小间距，可能会损毁周围环境和/或导致设备故障。



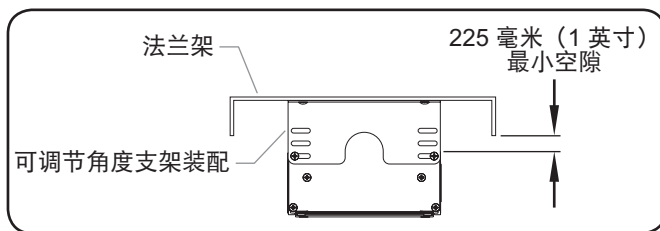
小心

确保安全正确地操作。请参阅本手册的“安装”部分列出的“最小间隙要求”。

注意

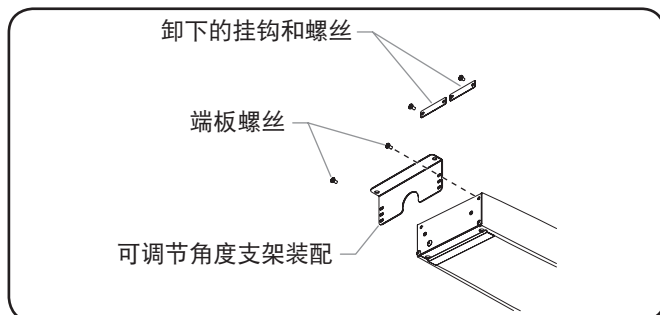
因为赫高设备产生热量造成的任何台面材料损伤，都不在赫高的保修范围内。请联系台面材料厂家，获取应用信息。

注意：在架子下方装配设备时，建议使用远程控制机柜。



平面架子安装

1. 将设备放置在一个平面上，加热元件朝下。
2. 去除两个挂钩螺丝和挂钩。这些物品将不再需要。
3. 拆卸两个上部端板螺丝。
4. 使可调角度支架与设备的端板安装孔对齐。用之前拧下的端板螺丝拧紧角度支架。

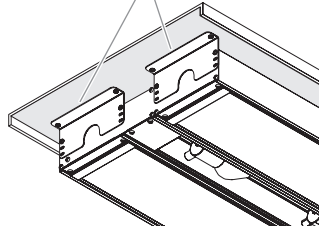


可调节角度支架的安装

5. 将角度支架拧紧至架子的上端，使用合适的紧固件（赫高不提供）。

注意：安装双设备需要两副支架。

在双设备各端安装两个可调节角度支架。



双设备装配

## 悬挂链装配

使用悬挂链装配设备是指使用“S”勾将设备挂到高处。

注意：已订购“S”勾选件的设备附带两个“S”勾，还有两根长 152 毫米（6 英寸）的悬挂链。如需在高处装配系统，可以从赫高订购更多悬挂链（P/N 05.03.020.00），或者由具备相应资质的安装工决定使用其他选项。



**警告**

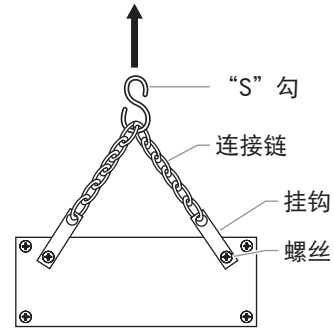
如使用悬挂链安装，确保悬挂链具有足够强度，且与设备和装配位置的连接足够牢固。如悬挂链安装不牢，会导致设备松开掉落。使用悬挂链安装时，请勿在设备上放置任何物品。

确保安全正确地操作。请参阅本手册的“安装”部分列出的“最小间隙要求”。

注意：赫高提供的悬挂链具有足够强度，但必须按正确方式装配才能保证牢固承担设备的重量。

1. 准备使用“S”勾的高处装配装置。确保装置牢固可靠，使设备安全地水平悬挂，且与墙壁、台面和食物保持适当距离。
2. 拧松但不要卸下用于固定设备两端挂钩的螺丝。向上旋转挂钩，然后将螺丝拧紧。
3. 用每对挂钩牢固地连接 152 毫米（6 英寸）的连接链。
4. 将“S”勾挂在每根连接链的中间。
5. 小心举起设备，将设备两侧的“S”勾挂到高处装配装置上。确保设备处于水平位置。

高处装配装置



“S”勾装配

## 电气信息

请参阅“规格”部分中的“电气额定值表”，了解设备具体信息。



**警告**

**触电危险：**对于硬连线设备，所有电气连接必须符合当地的电气规程和其他所有适用规程。连接应由具有资格和执照的电工进行。



**小心**

配有白炽灯的长条形保温灯需要大于 20 安培的断路器，因为加热元件必须有一个小于等于 20 安培的独立断路器，供给白炽灯使用。

注意：如果本手册没有显示或列出需要安装的设备，请参见随设备提供的接线图和安装信息，获取进一步指导。

## 电源

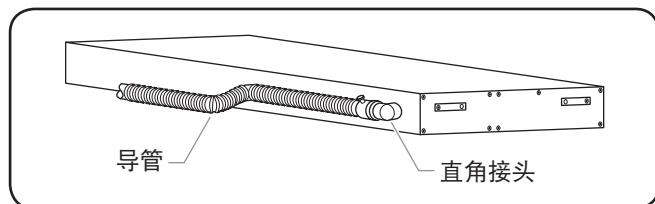
安装电源线和连接器，适用于至少 90°C (194°F)。

- 最大 15 安培的独立电路最少使用 No. 14 AWG 铜线。
- 15 到 20 安培的独立电路最少使用 No. 12 AWG 铜线。
- 最大 20-25 安培的独立电路最少使用 No. 10 AWG 铜线。
- 最大 25-30 安培的独立电路最少使用 No. 8 AWG 铜线。

注意：请参阅随设备提供的接线图以及随附的规格标签，了解具体的电气信息。

## 导管接线

配备直角接头和灵活导管的设备在工厂已经完成了内部连接。连接正确的电源会使导管内电线温度升高。



导管接线

注意：请参阅随设备提供的接线图以及随附的规格标签，了解具体的电气信息。

## 远程控制机柜

赫高远程控制机柜包括开关、电线和/或指示灯，以备安装。

RMB 系列的每个长条形保温灯需要一个远程控制机柜。RMB2 系列支持一个远程控制机柜连接多个长条形保温灯。

注意：根据型号不同，远程控制机柜有几种配置。所有机柜都符合 UL 标准，以容纳开关、指示灯和布线。有关详细信息，请参阅本手册的“选件及配件”部分。

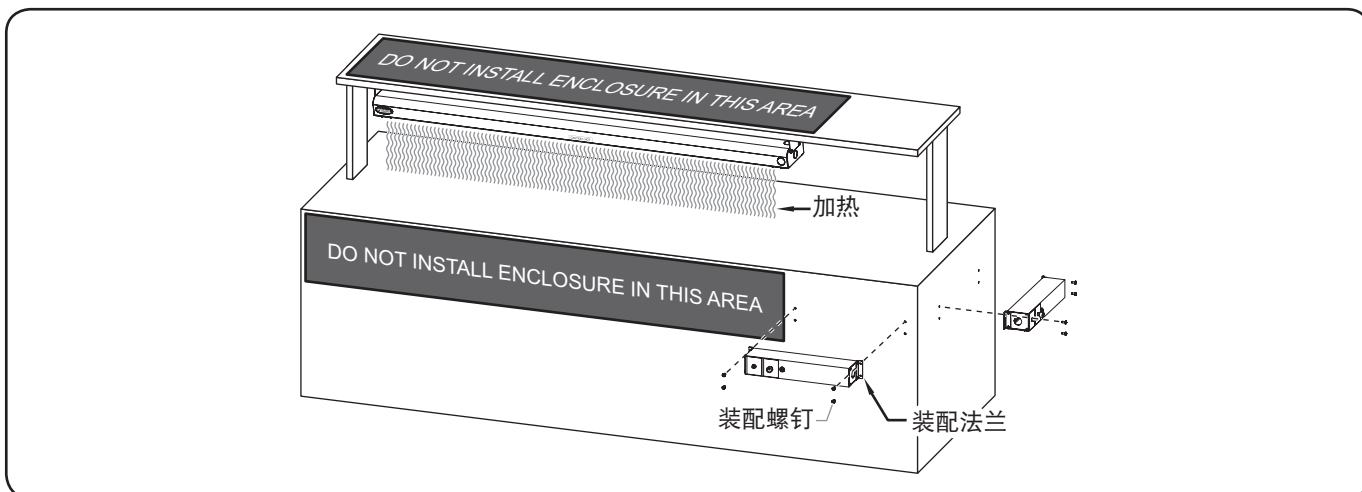
### 重要提示：

远程装配机柜和控制开关必须安装在阴凉干燥的位置，尽可能远离任何加热区。不要直接在设备上面、下方或上方安装机柜。安装机柜或开关不可直接接触加热表面或接近任何蒸汽发电设备。

注意：安装两个或两个以上设备时，热量会从一个外壳传导至另一个外壳，使其温度提高，因此控制开关应安装在远程控制机柜内。安装多个设备时，应当使用远程安装控制开关。

**注意**

为防止过度加热导致元件过早损坏，远程安装控制开关必须安装在长条形保温灯加热区之外。



远程装配机柜安装地点

## 总则

Glo-Ray® Infra-Black® 长条形保温灯的设计便于操作。请按照以下信息和程序来操作。



**警告**

操作此设备前，请先阅读“重要安全信息”部分中的所有安全信息。



**小心**

**烫伤危险：**本设备的某些外表面处温度较高。避免与本设备不必要的接触。

## 控制

Infra-Black 长条形保温灯配有装配在设备上的、带指示灯的温度控制箱 (TCBI)，也可以选择远程安装的远程控制机柜 (RMB)。下面列出的是每种控制配置的可用控制。

**I/O（打开/关闭）拨动开关**— 打开和关闭加热元件和/或灯的电

**温度控制**— 控制加热元件的温度。温度控制仅适用于装配 TCBI 的设备。

**无限控制**— 打开电源并控制加热元件的输出。无限控制仅适用于远程控制机柜。

**指示灯**— 电源打开后亮起，电源关闭后熄灭。

## 启动

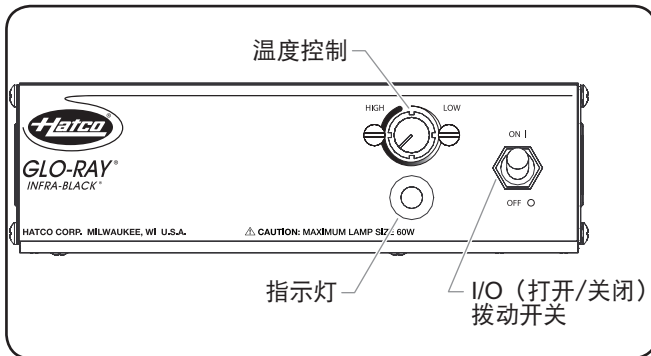
1. 将 I/O（打开/关闭）拨动开关移至 I（打开）位置，并/或将无限控制转动至所需的设置。

- 指示灯（如配备）将亮起，加热元件将激活。

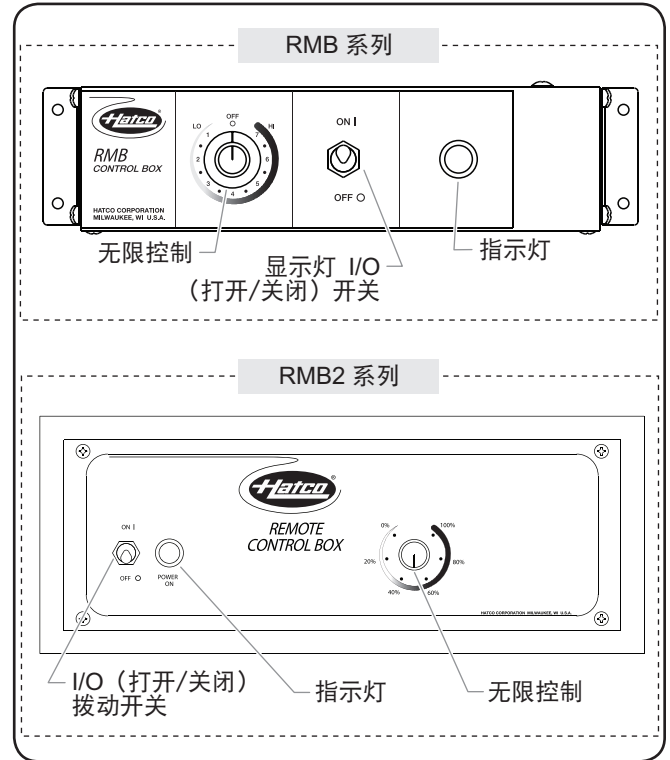
2. 对于带温度控制的设备，将控制转动至所需的设置。

注意：等待 15-20 分钟以达到运行温度。

3. 对于带显示灯的设备，将显示灯 I/O（打开/关闭）拨动开关移至 I（打开）位置以打开灯。



带指示灯的温度控制箱 (TCBI)



远程控制机柜

注意：请参阅“选件及配件”部分，了解远程控制机柜的信息。

## 关闭

1. 将 I/O（打开/关闭）拨动开关移至 O（关闭）位置和/或将无限控制转动至 O（关闭）位置。

- 指示灯（如配备）将熄灭，加热元件将关闭。

2. 对于带显示灯的设备，将显示灯 I/O（打开/关闭）拨动开关移至 O（关闭）位置。



## 总则

Glo-Ray® Infra-Black® 长条形保温灯的设计经久耐用、性能优异且易于维护。

### 警告

#### 触电危险：

- 在进行任何维护、调整或清洁工作之前，请先关闭熔断式开关/断路器电源，并使设备冷却。
- 请勿将设备浸入水中。本设备不防水。严禁使用被水浸过或浸湿的设备。
- 请勿用蒸汽或使用过多的水清洁设备。
- 本设备不具备防喷淋结构。请勿使用喷淋头清洁本设备。

本设备不含“用户维修”零部件。如需维修，请联系赫高授权服务机构或赫高服务部门，电话 (0512) 6732-5091。

维修时只能使用正品赫高更换零部件。未使用正品赫高更换零部件会导致质保失效，使设备操作人员受到有害电压威胁，并引起触电或着火。正品赫高更换零部件可以保证使用环境下的安全运行。某些售后或普通零部件不具备相关特性，从而无法保证赫高设备的安全运行。

## 每日清洁

为保护 Glo-Ray Infra-Black 长条形保温灯的表层，建议每日清洁所有表面。

### 注意

只能使用无磨料清洁剂。磨料清洁剂可能会刮伤设备表层，破坏其外观，并易使表面积尘。

1. 关掉设备，令其冷却。
2. 使用清洁的湿布擦拭所有金属表层。顽固污渍可使用品质良好的不锈钢或无磨料清洁剂去除。使用小刷子和温和皂清洁双手难以接触到的区域。

## 更换陈列柜灯泡

### 警告

仅可使用达到或超过美国国家卫生基金会 (NSF) 标准且专为食品存放区设计的灯泡。无特殊涂层的灯泡一旦破碎，可能造成人员伤害和/或食品污染。

陈列灯是一个白炽灯泡，能照亮保温区域。该灯泡有特殊涂层可防止人员受伤，并能在发生破损时防止食品污染。

#### 要更换灯泡：

1. 断开电源连接并等待设备冷却。
2. 旋出设备的灯泡，更换特殊涂层的新白炽灯泡。

注意：赫高的防破碎灯泡符合食品存放和陈列区域 NSF 标准。对于 220–240 伏特的应用，请使用赫高 P/N 02.30.058.00。

**警告**

本设备只能由受过培训且具备相应资格的人员负责维修。若由不具备相应资格的人员维修，则可能引起触电或着火。

**警告**

触电危险：在对设备进行维护、清洁或排除卡死故障前，请先拔下电源线，并使设备冷却。

症状	可能原因	纠正措施
装置调至 I（打开），但没有热量。	设备没有通电。	检查断路器，必要时进行重置。
	开关有缺陷。	请联系授权服务机构或 Hatco 请求帮助。
	线缆没有接好。	请联系授权服务机构或 Hatco 请求帮助。
	加热元件存在缺陷。	请联系授权服务机构或 Hatco 请求帮助。
热量不够。	设备安装过分高于目标区域。	降低设备的位置，使有效热量接近目标。
	长条形保温灯目标区域周围空气流动过多。	限制或重定空气流动（空调管或排气扇），使其离开设备。
	电源有误（电压低）。	检查设备电源，确保其匹配。如果电源不正确，更换电源以匹配设备。
	温度控制设置过低。	调高温度控制设置。
热量过多。	设备安装过分接近目标区域。	查看安装符合类型/型号规格。如果太近，便增加安装高度。
	电源电压过高。	检查设备电源，确保其匹配。如果电源不正确，更换电源以匹配。
	温度控制设置过高。	调低温度控制的设置。
控制开关很快烧坏。	开关安装在加热区。	按照本手册中的赫高要求检查开关位置。如果安装位置不正确，将开关改装在相对阴凉干燥的位置。
	并非所用开关都由赫高提供。	真正的赫高零件能够在使用环境中安全、正确地运行。请联系经过授权的服务代理或赫高以使用正品赫高更换零部件更换开关。

#### 对问题进行故障针对？

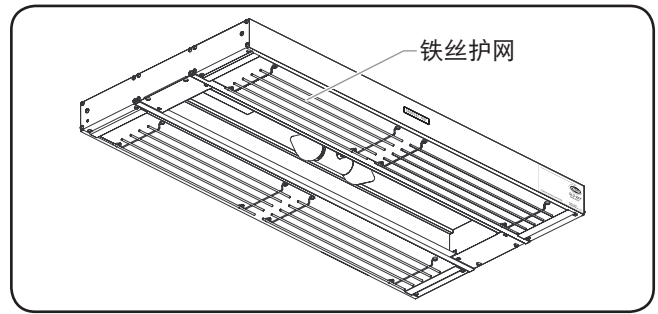
如果您的困境在问题解决后仍无法解除，请联系距您最近的经过授权的服务代理或 Hatco 以寻求帮助。请查找最近的服务机构，请登录 Hatco 网站 [www.hatcocorp.com](http://www.hatcocorp.com)，选择 支持 下拉菜单，然后单击“查找服务代理”；或者联系 Hatco 零部件和服务团队：

电话： (0512) 6732-5091

电子邮件： [infocn@hatcocorp.com](mailto:infocn@hatcocorp.com)

元件铁丝护网

元件铁丝护网为出厂时安装的选项。元件铁丝护网可防止用户无意中接触加热表面。GRAIH-XXD 和 GRAIHL-XXD 需要两组铁丝护网。



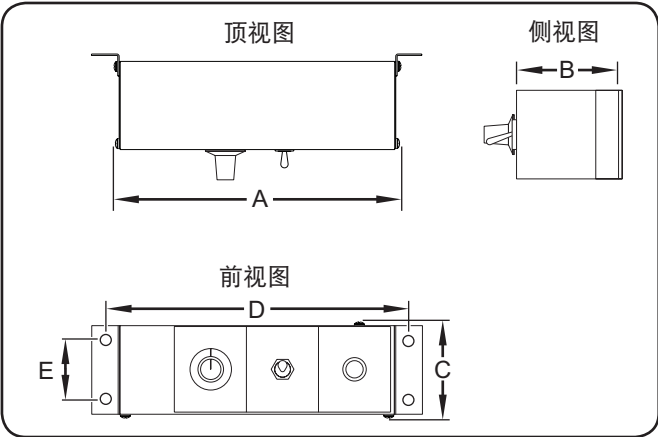
带元件铁丝护网的 GRAIHL-XXD

远程控制机柜 — RMB 系列

RMB 系列远程控制机柜提供多种规格和配置，以搭配长条形保温灯使用。远程控制机柜使得控制器远离设备的热量，延长控制器的寿命。所有型号都符合开关、指示灯和布线的 UL 标准。请咨询工厂，了解 RMB 系列控制机柜的类型和位置。

注意：RMB 系列远程控制机柜的每个长条形保温灯需要一个远程控制机柜。

型号	宽度 (A)	深度 (B)	高度 (C)	螺丝宽度 (D)	螺丝高度 (E)
RMB-3 Series	150 mm (5-15/16")	76 mm (3")	67 mm (2-5/8")	161 mm (6-5/16")	41 mm (1-5/8")
RMB-7 Series	239 mm (9-3/8")	76 mm (3")	67 mm (2-5/8")	249 mm (9-13/16")	41 mm (1-5/8")
RMB-14 Series	366 mm (14-3/8")	76 mm (3")	67 mm (2-5/8")	376 mm (14-13/16")	41 mm (1-5/8")
RMB-16 Series	417 mm (16-3/8")	76 mm (3")	67 mm (2-5/8")	427 mm (16-13/16")	41 mm (1-5/8")
RMB-20 Series	518 mm (20-3/8")	76 mm (3")	67 mm (2-5/8")	529 mm (20-13/16")	41 mm (1-5/8")



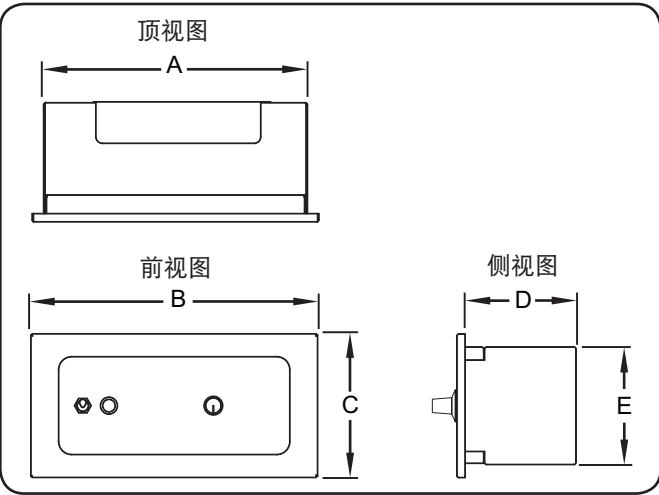
Dimensions — RMB Series

远程控制机柜 — RMB2 系列

RMB2 系列远程控制机柜支持单个机柜连接和控制多个长条形保温灯。连接的所有长条形保温灯的总额定安培不得超过远程控制机柜的额定安培。请咨询工厂，了解具体应用中正确选择 RMB2 系列远程控制机柜的信息。

RMB2 系列尺寸

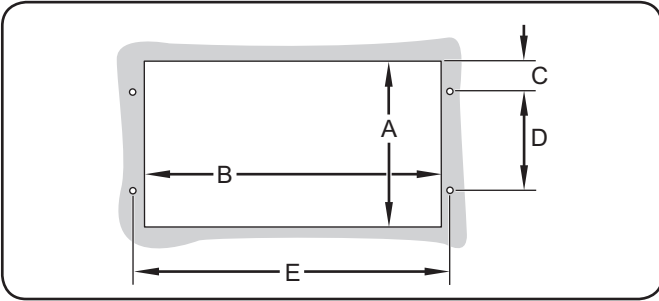
型号	宽度 (A)	宽度 (B)	高度 (C)	深度 (D)	高度 (E)
RMB2-1R	257 mm (10-1/8")	279 mm (11")	140 mm (5-1/2")	109 mm (4-1/4")	116 mm (4-5/8")
RMB2-2R	333 mm (13-1/8")	356 mm (14")	140 mm (5-1/2")	109 mm (4-1/4")	116 mm (4-5/8")



尺寸 — RMB2 系列

RMB2 系列开口尺寸

型号	开口尺寸		螺丝孔尺寸		
	(A)	(B)	(C)	(D)	(E)
RMB2-1R	121 mm (4-3/4")	257 mm (10-1/8")	29 mm (1-1/8")	64 mm (2-1/2")	265 mm (10-7/16")
RMB2-2R	121 mm (4-3/4")	333 mm (13-1/8")	29 mm (1-1/8")	64 mm (2-1/2")	341 mm (13-7/16")



Cutout Dimensions — RMB2 Series

## 1. 产品质保

赫高保证其生产的产品（下称“本产品”）不存在材料和工艺缺陷，在按照赫高的说明书安装和维护的情况下，自购买之日起1年内（用户必须书面且保养）或自赫高出厂之日起18个月内，设备可以保证正常工作。客户必须通过在赫高的官网上完成本产品的注册来确定产品的购买日期，或是经由赫高判断进而认可的其他方式。

赫高保证在下述时间内及条件下，下列部件自购买之日起（符合上述条件）不存在材料和工艺缺陷（条件如下）：

### a) 保修期为两（2）年的部件：

履带式烤面包机加热器（金属铠装）  
保温抽屉加热器（金属铠装）  
保温抽屉的抽屉滚轴和滑轨  
S食品保温器加热器（金属铠装）  
保温陈列柜加热元件（金属铠装、空气加热）  
保温柜加热元件（金属铠装、空气加热）  
保温汤锅加热元件—HWB系列（金属铠装）

### b) 保修期为五（5）年的部件：

3CS和FR水箱

### c) 保修期为十（10）年的部件：

电动瞬时加热器的水箱  
煤气瞬时加热器的水箱

### d) 保修期为九十（90）天的部件：

可更换零件

上述保固政策具有唯一性，任何其他明示或默示的保固政策受其约束。包括但不限于任何适销性或针对特定用途或专利或其它知识产权的侵权的默认保证。无限制前述事项的普遍性。在没有特定说明的情况下，上述质保不包括：带涂层白炽灯泡、日光灯、保温加热灯泡、带涂层卤素灯泡、卤素加热灯泡、氙气灯泡、LED光管、玻璃组件和保险丝；由于结垢、化学腐蚀或严寒造成的瞬时加热器水箱、翅片管式换热器或其他水加热设备的故障；或产品使用不当、擅自改动或误用、安装不当，或电压不正确。

## 2. 修复和损坏限制

本文所述赫高责任以及对用户的独家修复补偿义务仅限于在上述保修期内提出索赔，由赫高或赫高授权的服务机构负责更换新零件或产品或对原零件或产品进行维修。赫高有权接受或拒绝任何此类全部或部分的索赔。在此有限质保规定中，“翻新”是指本产品的部分或整机已经被赫高或赫高授权的服务代理机构修复至原有的产品规格。未经赫高事先书面批准，赫高不接受任何产品的退回，经过赫高同意的产品退回，其相关费用均由用户独自承担。在任何情况下，对于因故或意外而引起的损失，包括但不限于人工费用，或因产品的使用，或不会用，或产品隶属或成为其他产品的一部分而造成的利润损失，赫高将不予负责。

## 服务信息

此款 Hatco 设备的保修期为自购买之日起 1 年内或 Hatco 发货之日起 18 个月内，以先发生的日期为准。

如果此设备 在保修期内出现问题，请做以下事项：

### 联系当地 Hatco 经销商

在联系 Hatco 经销商寻求服务帮助时，请为经销商提供以下信息，以确保及时处理：

- 设备型号
- 序列号（位于设备）
- 设备具体问题
- 购买日期
- 商业名称
- 邮寄地址
- 联系人姓名和电话号码

Hatco 经销商会做以下事项：

- 按需提供更换零部件
- 向 Hatco 提交保修索赔以供处理

### 非保修问题

如果遇到需要帮助的非保修问题，请联系最近的 Hatco 授权服务代理。

查找最近的服务代理：

- 向 Hatco 致电： (0512) 6732-5091
- 向 Hatco 发送电子邮件： [infocn@hatcocorp.com](mailto:infocn@hatcocorp.com)

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**Register your unit online!**

See IMPORTANT OWNER INFORMATION section for details.

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